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The tube is provided with a [illegible] projection on to a screen. If wider [illegible] spring gate is supplied in which the [illegible] different optical system and an [illegible] magnification of 50 diameters at [illegible]

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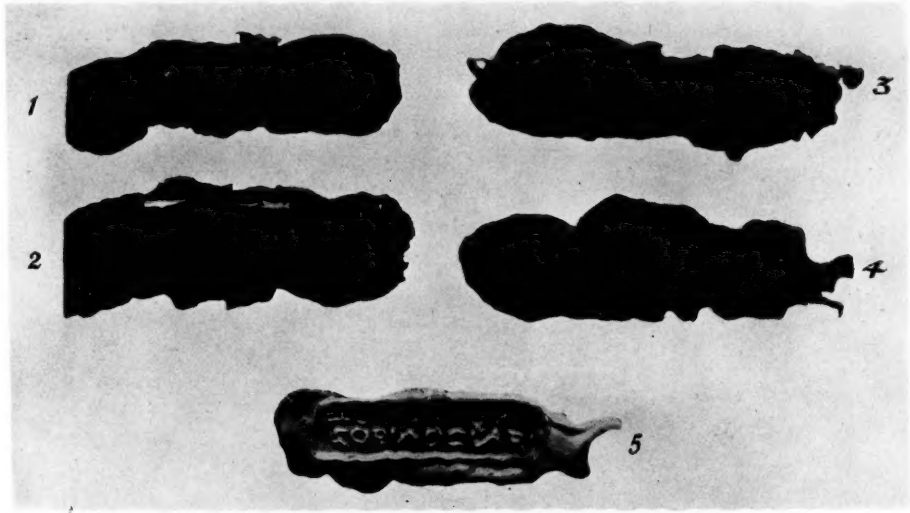

1, 2, 3, 4.—Wax casts of the Cripps Stamp, Cirencester, No. 2. Published by kind permission of Mrs. Wilfred Cripps.

5. Wax cast of the Lansdown Stamp. Published by kind permission of Sir Alexander Lawrence.

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ROMAN OCULIST-STAMPS IN BRITAIN

BY

R. R. JAMES

LONDON

THE classical account in the English language of these bits of antiquity is, of course, the celebrated paper by Sir James Simpson, Bart., communicated to the monthly *Journal of Medical Science* in the months of January, March, and April, 1851, and which is contained in the collected archaeological essays of that distinguished physician, which were edited by John Stuart, LL.D., and published in 1872. More than 70 years have elapsed since this paper was first given to the world and as it is by no means an easy one to obtain, outside of a general or medical library, I have thought it advisable to go over the old ground anew and, at the same time, to add notes of such recent finds as I have knowledge of, in the hope that readers of the *British Journal of Ophthalmology* may find something of interest in these relics of the past. According to Simpson, the earliest specimens of what he calls ancient Roman medicine-stamps were unearthed in Holland about the year 1650. Spon, of Leyden, published an account of another tablet in 1685 and suggested that these engraved stones were used by the ancient pharmacopolists as covers for the jars or boxes in which their ointments, oils, or collyria were kept.

During the eighteenth century various other stamps were found and described both on the Continent and in Britain. To quote Simpson: "These Roman medicine-stamps all agree in their

general characteristics. They usually consist of small quadrilateral or oblong pieces of greenish schist and steatite engraved on one or more of their edges or borders. The inscriptions are in small capital roman letters, cut retrograde and intagliate (like the letters on modern seals and stamps), and consequently reading on the stone itself from right to left, but making an impression, when stamped on wax or any other similar plastic material, which reads from left to right. The inscriptions themselves generally first contain (and that repeated on each side) the name of the medical practitioner to whom the stamp pertained; then the name of some special medicine, or medical formula; and lastly the disease or diseases for which that medicament was prescribed. In a few instances the modes and frequency of using the medicine are added."

In nearly every case, the medicines inscribed on these stamps are drugs for use in diseases of the eye or of its appendages. When Simpson wrote his paper only three of these stamps had been found in Italy itself; and yet it is of common knowledge that eye diseases were extraordinarily frequent in the Roman Empire in ancient times. Formulae for the composition of collyria are numerous in all the old writers; Galen speaks, in one of his books, of a forest of collyria, and has left, according to Simpson, formulae for about 200 of these local remedies for ophthalmic disorders. Some of them had such a reputation that in time they acquired a specific name; this was sometimes the name of the original compounder; sometimes the name was derived from some specific property (chloron, green; cirrhon, yellow; aromaticum, from its pleasant smell). The collyrium Diasmyrnes contained myrrh, the Diarrhodon, roses; one was named from its cheapness, another from its great value; lastly, a collyrium was often known under some high-sounding but unmeaning name, such as Olympus, Proteus, Phoenix, etc.

The stamps described by Simpson may be abstracted as follows:

A. *The Tranent Stamp.*

Found in East Lothian near Inveresk, and "now" in the museum of the Society of Scottish Antiquaries. It is of greenish steatite and forms a parallelogram of approximately 2½ inches in length, with an inscription cut upon two of its sides. These inscriptions run as follows:

(1) LVALLATINIEVODESADCI
CATRICESETASPRITUDIN
(2) LVALLATINIAPALOCRO
CODESADDIATHESIS

Simpson extends these inscriptions as follows:

(1) L. VALLATINI EVODES AD CICATRICES ET ASPRITUDINES.

(2) L. VALLATINI APALOCROCODES AD DIATHESIS.

Translated they run* "L. Vallatinus's evodes for cicatrices and granulations. (2) L. Vallatinus's mild crocodes for affections of the eyes."

Evodes means of pleasant odour (ἕυ, well, ὄζω, I smell). Marcellus in his work *De Medicamentis* praises the collyrium evodes in the treatment of ulcers and cicatrices of the eyes and eyelids. Scribonius Largus also describes the collyrium, "quod quidam εὐώδης vocant." Both authors give the composition as: pompholyx, burnt copper, saffron, myrrh, haematites, opium, etc., rubbed down in Chian wine. In dealing with the second inscription, Simpson points out that in Roman times the word diathesis meant the disease itself and not the tendency to the disease. The term crocodes means that the crocus, or saffron, is a principal ingredient; Simpson alludes to the unusual word APALO standing before crocodes and derives it from the Greek adjective ἁπαλός (mild, soft).

B. *Stamp in the British Museum.*

This is supposed to have formed part of Sir Hans Sloane's collection. It is a flat quadrilateral stone, 1½ inches broad approximately, engraved on three sides. One corner has been broken off, leaving a deficiency in one inscription, which Simpson supplies within brackets. The inscriptions are as follows:

(1) SEX JUL SEDATI CROCOD PACCIAN

(2) SEX JUL SEDATI CROCODES DIALEPIDOS

(3) (SEX) JUL SEDATI CRO
(COD) ES AD DIATHES

The proprietor's name is Sextus Julius Sedatus. The third inscription is so nearly identical with that on the Tranent stamp that it needs no comment. The Crocodes Paccianum derives its name from Paccius a celebrated Roman practitioner. Galen gives no formula for the Paccian Crocodes, but recommends it, in his chapter on ulcers of the eyes, when the eye is white and a stimulating application becomes advisable. The second variety of Crocodes is here named Dialepidos. Marcellus gives the formula for this with crocus as the principal ingredient. The name is derived from the fact that it contains the scales (λεπίδες) of burnt copper; *i.e.*, the black peroxide of the metal.

* Later authorities read the owner's name as L. Valerius Latinus.

C. *In the British Museum; also supposed to have formed part of the collection of Sir Hans Sloane.*

This stamp is small and broken; it is engraved on one side only. An unusual feature is that it does not include the name of the proprietor. The lettering is distinct except in one particular. Simpson reads the inscription as follows:

COLLYR
P CLOC

and extends this into COLLYRIUM POST CALIGINEM OCULORUM, the Collyrium for blindness of the eyes. The doubtful letter is the L in the final word; some read it as I; and if this is the correct reading we must substitute CICATRICES for CALIGINEM. P might stand for *post* or *pro*; according to Simpson, *pro* is unknown to him in this form of inscription whereas several examples of *post* are known.

D. *The Colchester Stamp.*

Wright states that this stamp was really found, not at Colchester, but at Gloucester. It was the first Roman oculist-stamp discovered in Britain and was described long ago by Chishull; his description was published in the *Tesoro Brittannico* and ran as follows:

(1) QIULMURRANIMELI
NUMADCLARITATEM
(2) QIULMURRANISTAGIU
MOPOBALSAMATADCAP

Chishull's extension of these inscriptions runs as follows:

(1) QUINTI JULII MURRANII MELINUM, AD CLARITATEM.
(2) QUINTI JULII MURRANII STAGIUM OPOBALSAMATUM, AD CAPUT.

Simpson has some corrections to make in the reading of the second inscription.

The first inscription may be translated as follows: The Melinum of Quintus Julius Murranus, for Clearness of Vision.

The collyrium Melinum is mentioned by Galen. Opinions differ as to its origin, whether from "malum" an apple; or from the island of Melos whence the ancients obtained their alum; or from an adjective "Melinum" meaning yellow.

The second inscription should run as follows:

Q (uinti) J (ulii) Murrani Stagium (Stactum) Opobalsamatum Ad Cap (Caligines). The Opobalsamic Stactum of Q. J. Murranus for dimness or blindness. The word Stactum means a drop; it was a favourite local application. Aetius gives a chapter on these kinds of collyria, describing five collyria stactica; of these, four contain the opobalsam. Simpson adduces evidence from a stamp

found in France with an almost identical inscription, and in which the Stactum Opobalsamatum is for Caligines as in his revised reading.

E. *The Bath Stamp.*

Found in 1731 in a cellar in the Abbey Yard. When Simpson wrote his paper its whereabouts were unknown and he had to rely on the published accounts of it and on the description of it recorded in the minutes of the Society of Antiquaries. Gough, in 1788, contributed to *Archaeologia* "observations on certain stamps and seals used anciently by the oculists," and described the Bath Stamp as square, of a greenish cast and perforated. Gough read the inscriptions as follows:

(1) T JUNIANI THALASER
AD CLARITATEM
(2) T JUNIANI CRSOMAEL
IN M AD CLARITATEM
(3) T JUIANI DYJC VM
AD VETERES CICATRICES
(4) T JUNIANI HOFSUMAρDV
EC UMODELECTA AMEDICIS

The first two inscriptions are sufficiently accurate. Simpson picks holes in the other two and suggests much more probable renderings. In all four, the oculist's name is perfectly distinct. T (itus) Junianus.

The following are Simpson's readings of the inscriptions:

(1) The Thalasser of Titus Junianus for clearness of vision. The Thalasser was the sea-green or marine collyrium from *θάλασσα*, the sea; it was a favourite remedy.

(2) T. JUNIANI CERUSSOMAELINUM AD CLARITATEM. T. Junianus's ?Leaden or Golden-Yellow Collyrium for clearness of vision.

The prefix CRSO admits of more than one interpretation. Galen gives four different formulae for the collyrium Melinum; three of them contain as one of the ingredients, the cerussa or carbonate of lead. Another meaning has been suggested by M. Sichel; CRSO a contraction for CHRUSO, golden, from *χρῦσος*, gold, and Simpson calls to mind the favourite golden ointment of his day.

(3) T. JUNIANI DIEXUM AD VETERES CICATRICES.

The word Diexum is a puzzle. Gough's transcript gives three very imperfect attempts at letters, which I have entered as YJC; it is only fair to say that none of these letters is really at all like what I have printed; Simpson calls them of rude Brittano-Roman characters and has attacked the problem from the other end, *i.e.*, the complaint; the old scars, for which the medicament was to be used, and he found that in most of the other known examples

of drugs for use AD VETERES CICATRICES, the collyrium is named Diamysum. He thinks that Diexum should read DIAMYSUM, but he admits a possible derivation as DRYCUM or DRYXUM from (δρῦς), an oak; the bark, acorn, or galls of the oak tree being made to yield an astringent liquid for the collyrium. Gall-nuts of the oak appear to have been used for tinting old cicatrices; *i.e.*, for tattooing an old leucomatous cornea. Another, and possibly a less far-fetched derivation is from the collyrium DIOXUS or DIOXUM given by Marcellus for use in granular lids, composed of cadmia, burnt copper, haematites, myrrh and gum.

(4) T JUNIANI HOFSUM (or HOBSUM) AD ρUECUMO DELECTA A MEDICIS. This inscription has been most carelessly copied by Gough. The plaster cast of this side of the stamp in the museum of the Society of Antiquaries is very imperfect, but Simpson felt sure that the HOFSUM or HOBSUM is really PHOEBUM, while the Greek ρ is apparently a Latin Q. He thinks that this is probably an error for L; and his final rendering of this inscription is as follows: T JUNIANI PHOEBUM AD LEUCOMA DELECTA A MEDICIS. This may be translated: the Phoebum of T. Junianus for Leucoma, esteemed by physicians. He could not find any evidence of a collyrium of the name Phoebum in the ancient writers and offers an alternative reading, PHORBUM. Galen says of the Phorbum that it possesses alternating, attractive and discutient powers. Its seeds, mixed with honey, were applied to leucomata.

F. *Mr. Douce's Stamp.*

Douce published in 1778 a note of a square flattened stamp, each side measuring 2 inches, the thickness being ¼-inch. Gough published in *Archaeologia*, a sketch of this stamp. In a note in the *Gent's Mag.*, 1778, it is stated to have been lost out of a pocket that had a hole in it. The inscriptions are as follows; the terminal and initial letters of three of the lines being wanting, were added by Simpson in italics:

(1) MJULSATYRIDIA
LEPIDOSADASPR
(2) MJULSATYRIDIASMI(r)
(n)ESPOSTMPETLIPPIT
(3) MJULSATYRIDIALI
BANUADSUPPURAT
(4) (m)JULSATYRIPENI
CILLENEEXOVO

The name of the owner, M. Jul (Julius) Satyrus is quite distinct on all four sides. Extended, these inscriptions read as follows:

(1) M JULII SATYRI DIALEPIDOS AD ASPRITUDINES. M. Julius Satyrus's Dialepidos for granulations.

The first three inscriptions all contain the letters DIA, from the Greek preposition "with," signifying "made with." Under Stamp B, we have seen that Lepidos refers to the scales of burnt copper, *i.e.*, the oxide of the metal.

(2) M JULII SATYRI DIASMIRNES POST IMPETUM LIPPITUDINIS.

The Diasmyrnes, or myrrh collyrium of M. Julius Satyrus, after the commencement of ophthalmia.

Lippitudo, according to Galen, was conjunctivitis; the term has also been used to designate blepharitis, or blear-eye.

(3) M JULII SATYRI DIALEBANUM AD SUPPURATIONEM. M. Julius Satyrus's Dialebanum for suppuration.

Frankincense (λίβανος) was frequently used in ancient times in collyria. Here Simpson translated the word Dialebanum as the incense collyrium.

(4) (M)JULII SATYRI PENICILLUM LENE EX OVO. M. Julius Satyrus's mild Penicillum, to be used with egg.

Pliny speaks of Penicillum as a fine variety of sponge, a pledget of which was recommended to be applied to the eyes, soaked in myrrh or rose leaves. Others have considered the Penicillum as a sort of swab for cleaning away discharges. Simpson suggests that the collyrium or ointment which was to be used with a sponge or swab was sometimes designated Penicillum, from the special mode in which it was to be applied. White of egg was a very favourite method for the use of these collyria.

G. *Stamp in the British Museum.*

This is thicker and more rounded at the edges than the generality of these stamps. Gough, in *Archaeologia*, published a sketch and an account of this stamp; but he came to grief in not appreciating the fact that two of the sides are imperfect; and that in consequence the latter half of one of the inscriptions and the first half of the other are deficient; the stone having been broken or reduced in size, and subsequently again rubbed down and smoothed on two of its sides, before one of the sides was engraved with the rude lettering to which he alluded in his description. The inscriptions are as follows:

(1) LJULIVENISD—
OPOBALSAMTU—
(2) —ASMVRNESBIS
—MPETUEXOVO
(3) FSEKUNDI
ATALBAS

The owner's name, in two of the inscriptions was L. JULIUS IVENIS. Simpson notes that the cognomen IVENIS is one that

constantly recurs among the Roman pottery stamps found in England.

It is impossible to fill in with precision the missing letters of the first two inscriptions, but Simpson, judging from the analogy of similar and more perfect stamps reads them as follows:

(1) L JUL IVENIS DIAPSORICUM OPOBALSAMATUM (AD CLARITATEM). L. Julius Ivenis's opobalsamic Diapsoricum for clearness of sight. We have seen under Stamp D the adjective opobalsamatum joined to the word stactum; but in stamps found at Jena and at Lyons it is used joined with Diapsoricum. The letter D of the last of the first line of the inscription would point to this word rather than to Stactum. The Psoricum was a mixture of cadmia and chalcitis according to Dioscorides, Pliny and Celsus; and of lithage and chalcitis according to Galen, Aetius and Paulus Aegineta. On a stamp found at Jena the opobalsamic Diapsoricum is followed by AD CLARITATEM.

(2) L JUL IVENIS DIASMYRNES BIS (LIPPITUDINIS IM)PETU EX OVO. The Myrrh Collyrium of L. Julius Ivenis to be used twice daily, mixed with egg, at the commencement of ophthalmia.

The third side of this stamp is very roughly and rudely engraved. The name of another oculist appears; F.SECUNDUS. The inscription reads F. SECUNDI AT ALBAS; the collyrium of F. Secundus against albugines. Simpson considers that the AT is a mistake for AD, and that ALBAS means white scars, *albugo* of the cornea. De Villefosse and Thédenat refer to a stamp with an almost similar inscription (FL for F), found at St. Albans, in their work "Cachets d'Oculistes Romains," 1882, probably they are referring to this stone. It was found at St. Albans in 1739.

H. *Stamp found at Littleborough, Nottinghamshire.*

In 1772 a sketch and notice of this stamp was sent to the *Gent's Mag.* from Southwell, Notts. by an anonymous contributor, C.D. It was described as an oblong stone about 2 inches long and 1 inch broad. The inscriptions are cut on the two ends and on one of the long sides. This latter appeared to contain the name of the owner, but it was so badly cut (or copied) as to be quite unintelligible. Simpson does not attempt to elucidate it, but he gives the inscriptions on the short ends as follows:

(1) B DIASORICV
(2) STATUS

He considers that these are obvious mistakes for DIAPSORICUM and STACTUM. The inscription on the long side as shown in the plate which illustrates the article, seems to reads as follows:

IRAICALSILIIAL

I can only copy Simpson and leave it alone.

I. *The Wroxeter Stamp, now in the Shrewsbury Museum.*

This almost unique stamp was turned up by a plough in 1808, while ploughing a field near the Old Wall at Wroxeter (Viroconium). It was figured and described by Parkes in the *Gent's Mag.* in 1810. Nightingale in the *Beauties of England and Wales*, makes mention of it; while Hartshorne in *Salopia Antiqua* (1841) wrongly described it as an amuletal seal. Hartshorne's description was corrected by Albert Way and by Wright in his *Celt, Roman and Saxon*, but it was left to Simpson to give the best rendering The inscription is cut on the face, like that in the Leicester Stamp, to be presently noticed, and runs as follows:

IBCLM
DIA LBA
AD OM
NE Δ UN
O EX O

Wright read the owner's name as Tiberius Claudius Medicus, but in no other stamp so far as I am aware, is the description Medicus ever found in connection with these seals; had the owner wished to have Medicus inserted he would, I think, have qualified it by the word Ocularius; while there was so much to be got into a rather limited space that I am sure that the M here does not refer to the owner's profession. Simpson's reading is as follows:

J (ulii) B (assi) Clementis Dialebanum ad omnem *Διάθεσιν* uno ex ovo. The Dialebanum, or Incense collyrium, of Julius Bassus Clemens for every eye disease; to be used mixed with an egg. Simpson points out that Clemens was a fairly common family name among the Romans. Julius Bassus was a well-known physician and is mentioned by Dioscorides; while on a monumental tablet discovered at Leyden, the cognomen of Clemens is actually preceded by the names of Julius Bassus. The Wroxeter Stamp has a rude figure of a plant engraved at one side of the inscription, and Hartshorne confused himself and others by reading this figure as a letter for the beginning of the third line.

J. *The Kenchester Stamp.*

This stamp was described in the *Jl. of the Brit. Archaeological Assoc.* for 1849 by Roach Smith. It is a quadrilateral stone engraved on all four sides, while the word SENIOR is engraved on one face and the letters SEN on the other. The inscriptions run as follows:

(1) F VINDACARIO
VISTIANICET
(2) T VINDACIAR
(I)OVISTINARD
(3) T VINDAC ARI
OVISTI CHLORON
(4) T VINDAC ARIO
VISTI —RINM

The proprietor's name F *or* T Vindex Ariovistus is quite clear. Simpson recalls the name of the German King, Ariovistus, who caused so much trouble in Caesar's army; details of which will be found in the first book of *De Bello Gallico* if any are anxious to renew their acquaintance with that work.

The inscriptions can be extended as follows:

(1) F VINDACII ARIOVISTI ANICETUM. The Anicetum, or infallible collyrium of F. Vindex Ariovistus. Oribasius describes a collyrium Anicetum, composed of red copper, henbane, hemlock, spikenard and frankincense, as good for carbuncle. Roach Smith thought that aniseed was meant, but Simpson points out the true derivation from the Greek word for unconquered.

(2) T VINDAC ARIOVISTI NARDINUM. The spikenard collyrium of T. Vindex Ariovistus.

(3) T VINDAC ARIOVISTI CHLORON. The green collyrium of T. Vindex Ariovistus.

(4) T VINDAC ARIOVISTI (TU)RINUM. The frankincense collyrium of T. Vindex Ariovistus. The last inscription is almost undecipherable, Roach Smith did not attempt to render its meaning, but Simpson, by a careful study of an impression, came to the conclusion that the terminal letter is M, and that, of the four letters preceding, the first three are RIN. The collyrium Turinum is recorded on three stamps that have been discovered in France; the principal ingredient was frankincense; it is sometimes spelt Thurinum and at others, Turinum. We shall see when we come to describe the stamp owned by Mrs. Wilfred Cripps, which was unearthed in 1900, that the terminal word of the first line of the first inscription is the word Turinum; and it is impossible not to wonder at the almost uncanny ingenuity of the late Sir James Simpson in unravelling these old obliterated inscriptions. It is a striking testimony to his learning that his surmise in 1851 should be verified by the identical word turning up in a stamp discovered years after his death.

K. *The Cirencester Stamp* (I) (now in the British Museum).

This was found in 1818 in a garden, deposited in an urn. The stone is a parallelogram; the inscriptions are as follows:

(1) MINERVALIS DIALEB
ANUM AD IMPT LIPP EX OVO
(2) MINERVALIS MELINU
AD OMNEM DOLOREM

The owner's name was Minervalis and the inscriptions extended run as follows:

(1) MINERVALIS DIALEBANUM AD IMPETUM LIPPITUDINIS EX OVO. The frankincense collyrium of Minervalis for attacks of ophthalmia to be used with egg.

(2) MINERVALIS MELINUM AD OMNEM DOLOREM. The yellow collyrium of Minervalis for every pain or disease of the eye.

L. *Irish Stamp* (now in the British Museum).

This was found in Tipperary not long before Simpson wrote his paper. Ireland is said not to have been subject to Rome, but Roman antiquities have been found there and among them this stamp. It is engraved on one side only as follows:

M JUVEN TUTIANI
DIAMYSUS AD VET CIC

Extended, M JUVENTII TUTIANI DIAMYSUS AD VETERES CICATRICES. The Diamysus of M. Juventius Tutianus for old cicatrices. The Diamysus according to Simpson derives its name from the fact that the principal ingredient is misy, a metallic vitriolic preparation, used anciently as a stimulant and escharotic; as late as 1662, it still occupied a place in the London Pharmacopoeia. According to Adams the misy was a combination of sulphate of copper with sulphate of iron.

So far I have only been abstracting Simpson; I now start on the stones which have been discovered since the date of his paper.

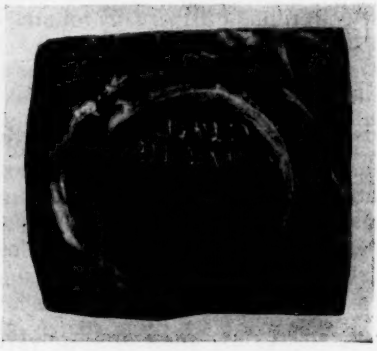
M. *The Leicester Stamp.*

This is a circular stamp about $\frac{1}{8}$-inch in diameter. I am indebted to Mr. N. C. Ridley for the loan of a plaster cast of this stamp, and through him to the Curator of the Leicester Museum for a description of it, and the beautiful photographs which are reproduced here. It was found at a depth of ten feet in High Cross Street, Leicester, in 1873. When first I saw the cast I was doubtful if it could reasonably be considered an oculist-stamp. The illustration shows that the lower part of the stamp is occupied by a grotesque figure which has some resemblance to the profile of a human head and neck, with a very prominent beak-like nose.* The inscription runs as follows:

C PAL
GRACILIS

*A stamp discovered at Amiens in 1846, shows the profile of a human head and neck on one surface.

Various authorities have read the final word of the first line as PAL, but on examining it with a + 13D. lens, I cannot get away from the idea that the letter P is really meant for D, the curve of the letter comes very nearly to the base of the upright part of the letter. Assuming the letter to be a D, the inscription extended



The Leicester Stamp. Face of Inscription.

The Leicester Stamp, Cast of the Inscription.

might run C (AII) or C (LAUDII) DIALEBANUM or DIALEPIDOS GRACILIS. The Dialebanum or Dialepidos of Caius or Claudius Gracilis. In this way only can I consider myself justified in assuming this to be a Roman oculist stamp. It is interesting to note that in the Wroxeter stamp, the only other circular stamp known to me in Britain, the collyrium named in the inscription is a dialebanum. In passing, I may note that Deneffe in his pamphlet *Les oculistes Gallo-Romains au IIIe siècle* (1896) mentions this Leicester stamp;

he reads the inscription as follows: Gaius Pol—Gracilis. There are two manifest errors here, the first letter of the inscription is undoubtedly a C, this is quite obvious when one compares it with the G of Gracilis immediately underneath and no stretch of the imagination can make the A in the second word into an O. The Curator of the Leicester Museum, in his description, seems to

The Leicester Stamp. Side view.

think that the stamp is probably a tradesman's stamp. I do not feel that I can be absolutely sure that it is an oculist-stamp, but it seems to me quite legitimate to give it the benefit of the doubt and to include it in this paper.

N. *The Cripps Stamp* (Cirencester 2).

I am deeply indebted to Mrs. Wilfred Cripps of Cirencester for information about this stamp, which is in her museum of Roman antiquities, and for the impression of it which she most kindly sent at my request. This stamp was dug up in ground near the Great Western Railway station in 1900. It is a square stamp;

each side measures $1\frac{3}{4}$ inches in length by $\frac{1}{4}$-inch in thickness. The inscriptions run as follows:

(1) ATTICI COLLYR TURINUM
AD OMNES DOLORES EX OVO
(2) ATTICI LENE AD OMNES DOLO
RES POST IMPETUM LIPPITU
(3) ATTICI DIAGLAUCAEUM
AD OMNES DOLORES F
(4) ATTICI COLLYR MELI
NUM AD ASPRITUDIN F

Inscriptions (1) and (4) have fine parallel lines separating the two halves of the inscriptions; between the lines on the second inscription is a perfect representation of a "swastica"; while the spaces at the ends of the two lines in the fourth inscription are occupied by emblems which I am not able to interpret; the bottom one might be interpreted as a rough figure of a stalk with leaves on it. These inscriptions are easy to translate with the exception of the word DIAGLAUCAEUM in the third. I take it to mean the green dialebanum; the letters are perfectly distinct and there is no doubt that they occur on the stamp as I have transcribed them. The word DIAGLAUCEN occurs on a stamp found at Poitiers, which is described by de Villefosse and Thédenat. It is a very interesting thing that two of these stamps should have been unearthed at one Roman station; doubtless the owners were not in practice at Corinium at the same time. The name ATTICUS denotes a Greek extraction and the presence of the swastica favours this supposition also, while it is a matter of general knowledge that the medical men in practice in the Roman Empire were for the most part Greeks.

Corinium was a most important centre in Roman Britain; many roads met there. The Akeman Street came in from the south-west, leading from Bath (Aquae Solis) and beyond that from Isca (Exeter). The Foss Way, the great Roman highway through the midlands from south-west to north-east starts here and runs through Leicester (Ratae) to Lincoln (Lindum); running west and north was the main Roman road to Gloucester (Glevum), while from the south-east came in the road from Calleva (Silchester).

O. *Stamp in the British Museum.*

This is an oblong greenish stone with inscriptions on all four sides and with certain marks on at least one of the two surfaces. It was found in a ballast pit near Sandy, Beds., and was presented to the British Museum by J. C. Lucas, Esq., F.S.A., in 1882. The marks on one of the surfaces are quite distinct but rather

roughly scratched as follows: DIOX STAC. DIAGLAUC MIXT. The owners' names were CAIUS VALERIUS VALENTINUS, whose inscription occurs on two of the edges, while on the other two appear the name of CAIUS VALERIUS AMANDUS. Presumably they were near relations, probably brothers and in partnership together.

(1) C VAL AMANDI
STACTUM AD CA
(2) C VAL AMANDI
DIOXUM AD REUMTC
(3) C VAL VALENTINI
DIAGLAUC POST IMP LP
(4) C VAL VALENTIN
MIXTUM AD CL

The words Dioxum and Stactum I have already alluded to, they need no further elucidation. The inscriptions may be extended as follows:

(1) CAII VALERII AMANDI STACTUM AD CALIGINEM. The Stactum or drop of Caius Valerius Amandus for blindness.

(2) C. VALERII AMANDI DIOXUM AD RHEUMATICA. The Dioxum (vinegar lotion in the British Museum catalogue) of C. Valerius Amandus for running eyes.

(3) C. VALERII VALENTINI DIAGLAUCIUM POST IMPETUM LIPPITUDINIS. The Diaglaucum (poppy preparation in the British Museum catalogue) of C. Valerius Valentinus for use after an attack of blear eye.

(4) C. VALERII VALENTINI MIXTUM AD CLARITATEM. The mixture of C. Valerius Valentinus for clearness of sight. There is an excellent illustration of this stamp in the catalogue.

P. *Stamp in the British Museum.*

This is a Purbeck marble specimen found at Colchester and presented by Sir A. W. Franks in 1892. It is of square shape and the inscriptions are cut on three of the sides; the owner's name was Lucius Ulpius Deciminus. One side had only the letters UP DE cut on it. The second side bears ULP DECIMINI PENICIL LE. The third side bears L ULP DECIMINI DIAEPIDOS CROCOD AD OMNIA VITIA. The first of these inscriptions obviously refers to the owner's name; the second, to his mild penicillum and the third to his saffron collyrium for all ills of the eyes.

Besides these stamps in the British Museum the same Institution has the impression of an oculist-stamp stamped on the bottom of a pot or jar of red Samian ware which was found in the City of London and which came into the possession of the Museum in 1856. It is most unusual and it is attributed in the catalogue to

the second century; from the impression it would appear to have been a circular stamp; the following is the inscription:

L JUL SENIS
CROCOD AD ASPR

The Museum Catalogue reads the first initial as Q. The translation would run: "The Crocodes of Quintus (or Lucius) Julius Senex for granular lids." One may be permitted to wonder if there was also a Q Julius Junior in practice in London at the same time.

Q. *Stamp discovered at Lydney, Gloucestershire.*

This is of green steatite and was described in the "Proceedings of the Society of Antiquaries of London in 1876." (2nd Series, Vol V.) There are inscriptions on three of the sides:

(1) IUL IUCUNDI
COLYR MELNU
(2) IUL IUCUNDI
COLYR PENC
(3) IUL IUCUNDI
COL STACT

The owner's name was JULIUS JUCUNDUS and the translations of the rest of the inscriptions are sufficiently obvious; his Collyrium Melinum, Collyrium Penecillum and Collyrium Stacticum, all of which collyria we have met before.

R. *Stamp found at Harrold, Bedfordshire.*

This stamp was described in the "Proceedings of the Society of Antiquaries of London in 1896," (Vol. XVI). There are inscriptions on two of the sides as follows:

(1) C JUN TERTULLI DIA
LEPID AD ASPR ET C
(2) C JUN TERTULL
DIAMISUS AD CIC

The owner's name was C. Junius Tertullus and the translations of his wares present no difficulty; the Dialepidos for granulations and cicatrices, and the Diamisus for cicatrices.

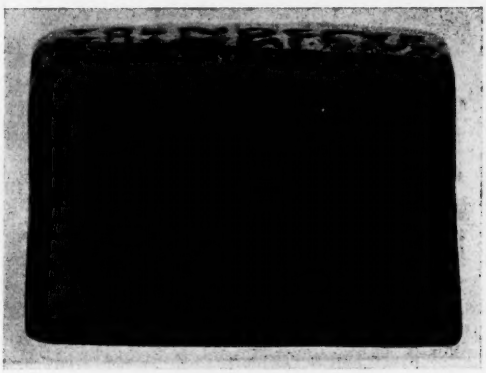
S. *The Lansdown Stamp.*

This paper had been ready for publication for some months when I was given by a friend a cutting from the *Daily Mail* announcing the discovery by Sir Alexander Lawrence of another example of a stamp on his estate at Brockham End, Lansdown, near Bath. I wrote to Sir Alexander, and he with great liberality

gave me all the information he had about this recent British find, with permission to include it in this paper.

The stamp was found at a depth of eighteen inches from the surface, in a field half a mile west of the main road from Bath to Wick, just south of the fourth milestone from Bath; fifty yards south of the old stone wall which forms the county boundary

The Lansdown Stamp



The Lansdown Stamp.

between Somerset and Gloucester, just above the brow of the plateau. It is of interest to note that the county boundary is an extremely ancient one, it being none other than the boundary between the Saxon kingdoms of Mercia and Wessex.

The stamp is $1\frac{1}{2}$ inches in length, 1 inch in breadth, and $\frac{1}{4}$-inch in depth; it is of a browny-green colour, and is composed, on the authority of Mr. Thomas of the Geological Museum, Jermyn Street, of a fine-grained silicious sandstone, showing specks of mica and

pyrites. The nearest deposit of this stone is in the old red sandstone found in the Mendip Hills.

The inscription is cut on one edge only of the stamp; the letters are not very clearly cut, and so some divergence of opinion exists as to the exact rendering. At first I inclined to the following:

FLUTUGNI DIAP
SORI AD CLARI

The Diapsoricum of F (ilius) Lutugenus for clearness of vision. The alternative readings are FI LITUGNI and LUCII JULII JUVENIS. The first of these is that suggested by Mr. R. O. Collingwood, of Pembroke College, Oxford; with whom both M. Esperandieu and Sir Alexander Lawrence are in agreement; the second is that suggested by Mr. Reginald A. Smith, of the British Museum. I imagine that Mr. Collingwood's reading will be regarded as the most likely; in this the i of the Fi joins on to the middle stroke of the F; in the same way the L and the I of Litugenus are joined together to look exactly like a modern U, while the u of the Litugenus is rendered V. On the upper or under surface of the stamp is a curved line with one end forked, which would do either for S or for a representation of a serpent with a forked tail.

It is of interest that this stamp has been found in a field on the site of what was almost certainly a Roman villa. The soil was found to be blackened as a result of fire at some remote date. It would appear that the site has never been built over since the original building was burnt. Sir Alexander tells me that he thinks it likely that this was the house of the owner of the stamp: in other words, the country house of an oculist who practised in Bath. It is to be hoped that future excavations may yield remains of surgical instruments in support of this view; which I must say, strikes me as very reasonable.

This appears to exhaust the list of Roman oculist-stamps found in Britain. Inquiries which I have made in various counties have not yielded any other finds; thus no specimens are present in the Museums of Canterbury, Maidstone, Reading (Silchester), Carlisle, Chester, Nottingham, and Colchester; and I am given to understand that there are none at York, Lincoln, and the museums in connection with the eastern end of the Roman Wall, nor was any specimen found last year at Folkestone by Mr. S. E. Winbolt.

I owe a debt of gratitude to many helpers and would especially thank Mr. N. C. Ridley of Leicester; Dr. Cotton of Canterbury; Dr. Hurry of Reading; Dr. Philip Laver of Colchester; Mrs. Wilfred Cripps of Cirencester; Mr. W. G. Collingwood of Coniston; and Dr. Felix Oswald, D.Sc. of Margidunum (Notts.).

Quite a large bibliography has arisen around these Roman fragments; the most authoritative book is Esperandieu's *Signacula Medicorum Ocularіorum* (1904). By the kindness of the Librarian of the Roman Society, 19, Bloomsbury Square, London, W.C.1., I was enabled to consult this work, which is now out of print. It gives details of more than 200 specimens.

Those who are interested in the pharmaceutical side of the collyria would do well to read the small pamphlet on Roman Oculists' Medicine Stamps and Collyria (1925) by Mr. C. J. S. Thompson, Curator of the Wellcome Historical Museum, to whom I am also greatly indebted for assistance. Lastly, I must record my thanks to the Deputy Keeper of the British Room of Roman Antiquities at the British Museum, who kindly gave me all facilities for examining the specimens in his care; and to Sir Alexander Lawrence for so generously allowing me to include his specimen.

ANOPHTHALMUS CONGENITUS IN A PUPPY

BY

H. WOOLLARD

LONDON

THIS puppy was given me by Professor J. P. Hill, who had received it when it was three weeks old. The investigation of the visual cortex was begun in the hope that the area striata might be the more easily discerned in the presence of this defect and thus throw light on the limits of this area in the dog. The localization of this area is on the whole firmly established. The only serious discrepancy arises from the work of Munk. The defect seems to be extremely rare, as Durlacher, writing in 1910, was able to find only 27 cases recorded in the literature.

As will be seen later, this case seems to differ from those previously recorded in that the nervous elements subserving vision were normal. Schwalbe states in his description of this condition that the optic nerves may be absent, that the lateral geniculate may be small or absent and the pulvinar reduced, and in the occipital cortex the stria of Gennari and the internal granular lamina are wanting. The principal descriptions of the changes in the central nervous system come from the publications of Bolton and Leonowa.

Bolton investigated the area striata in a new-born child in whom there was complete congenital anophthalmus. His main conclusion was that the area striata was reduced in extent. It occupies

the usual position in the stem of the calcarine fissure but only extends backwards for rather more than half the length of this sulcus, the posterior extremity of the area reaching only as far as the posterior cuneo-lingual gyrus. Below the fissure it is confined to the lower lip and to the lingual gyrus. Microscopically the outer layer of granules and the stria of Gennari are confined to about two-thirds of their normal extent. The other layers are unchanged. This amount of reduction is the same as that found in old cases of optic atrophy.

Leonowa studied several cases of optic atrophy and congenital anophthalmus. His material was stained with carmine which is not a very suitable stain for cell stratification. Altering his terminology to agree with more recent usage his conclusions were as follows. The lamina zonalis shows a few wide blood-vessels. The lamina granularis externa shows a reduction in the number of cells, large pericellular spaces being evident. The lamina pyramidalis shows a marked reduction in the number of cells. In the deeper portions of this layer the cells are more nearly normal. The lamina granularis interna is absent and there is no stria of Gennari. The remaining laminae are practically normal. He concludes that in anophthalmus the lamina granularis completely fails and he proceeds to the generalization that this lamina and the stria of Gennari only develop when the visual area is functionally active.

The observations presented here were made on a male puppy three weeks after birth. It appeared to be quite healthy and presented no other anomaly than the anophthalmus. Externally the eyelids had formed and though there was a line of division visible on the surface yet deeper they were still united. The orbits were of normal size and were filled with fibro-fatty tissue. No trace of the bulb of the eye could be found. The optic nerves were reduced to a mere thread and consisted of connective tissue only. The third, fourth, and sixth nerves could not be found in the tissues of the orbit. It is unfortunate that this orbital tissue was not examined by serial microscopic sections since by this method minute remnants of the bulbus oculi have been found. Thus Parsons, Natanson, Hess, and others have always discovered some trace of mesodermal elements of the bulbus oculi. No trace of the eye muscles was observed, and no change in the bony orbit. It is interesting to note that others have noticed that though the bulb may be absent yet the eye muscles are developed. From a review of the gradations of this defect it is obvious that—from microphthalmia to complete absence—there can be no doubt that malformation occurs at a very early stage in development and that in all cases normal development has begun.

When the base of the brain was examined it was found that the optic chiasma was reduced to a mere thread and that the optic tracts were invisible. The third nerve was picked up as a tiny strand issuing from the sulcus oculomotorius. The fourth and sixth nerves seem to have entirely disappeared. The brain stem was separated from the hemispheres and a drawing made of the dorsal surface (Fig. 1).

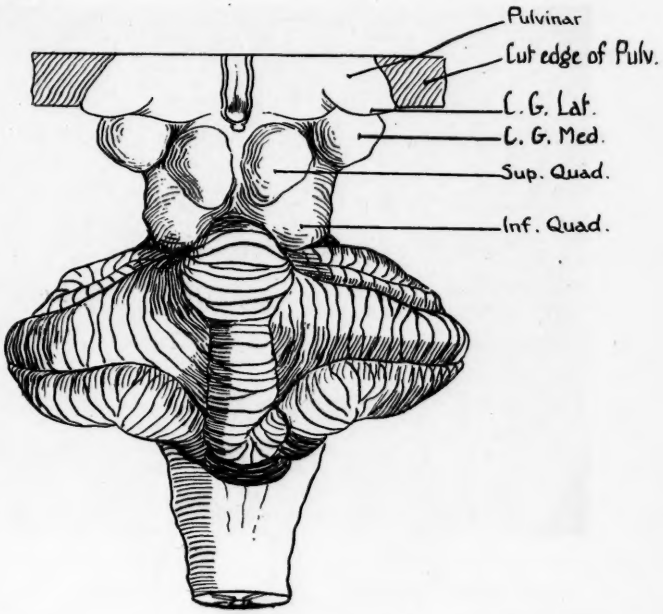


FIG. 1.

Dorsal view of brain stem.

From the figure it will at once be seen that the pulvinar, the lateral geniculate body, and the superior quadrigeminal body are well developed and exhibit no sign of any reduction in size. The brain stem was subdivided into blocks and cut into sections. The sections were stained with toluidin blue. The ocular nuclei are prominent and well developed and composed of cells which appear normal in every respect. The disposition of the third nerve nucleus and the richness of its cellular content show no abnormal change. Although no attempt was made to identify in detail the disposition of the cell groups of the individual eye muscles, it was apparent that these groups were present. In comparison with the figures of other observers one could be quite certain that no

alteration in the grouping of the cells had taken place. Moreover, the nucleus of Edinger-Westphal occupies its usual position and is of normal extent. The fourth and sixth nuclei were also apparently normal in all respects. The individual cells show no chromatolysis. The cells stain normally and the Nissl granules are abundant and sharply defined. We were surprised to find no

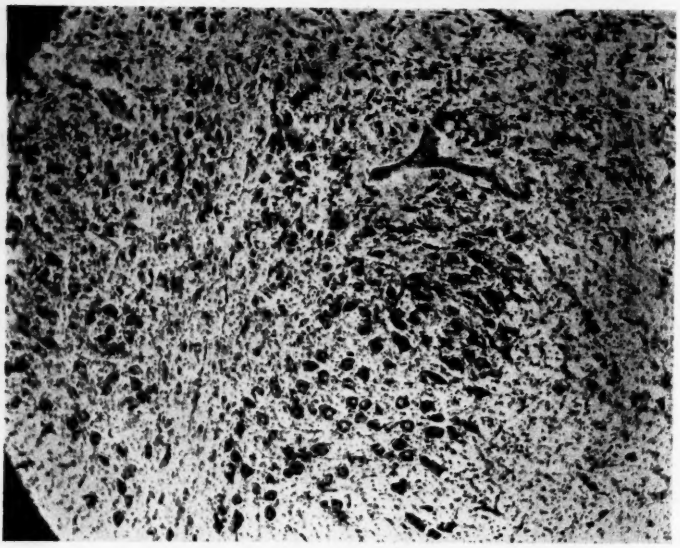


PLATE 1.

Microphotograph of the third nerve nucleus.

changes in these nuclei for either we could find no trace of these nerves or, as in the case of the third, only a mere thread.

In Plate 1 is reproduced a microphotograph of the third nerve nucleus and the nucleus of Edinger-Westphal. The normal macroscopic features of the dorsum of the mid-brain are paralleled by the microscopic observations. The disposition of the cells shows no reduction and the individual cells appear normal in every way.

The cerebral hemispheres are normal in size and the pattern of the fissures is of the usual complexity. The mesial surface is well indented by a sulcus splenialis, the posterior part of which is the sulcus calcarinus of Elliot Smith. The horizontal fissure crossing the area striata—the sulcus interstriatalis of Elliot Smith or the

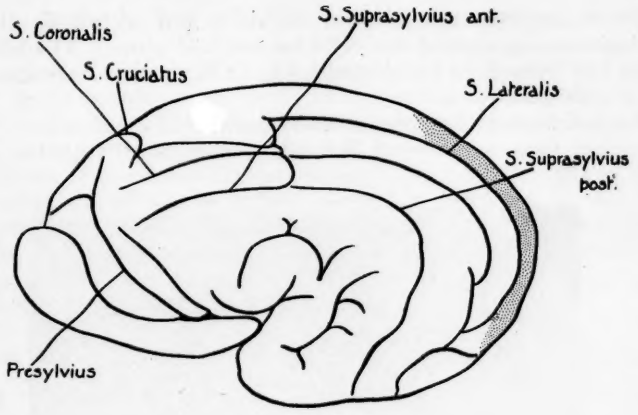


FIG. 2.

Lateral view of hemisphere.

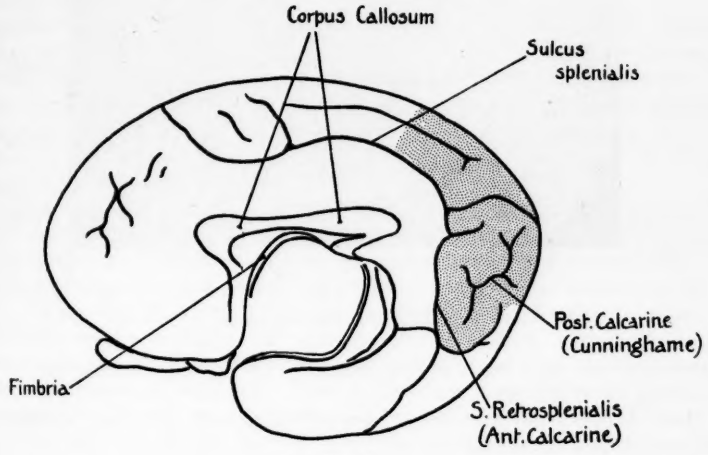


FIG. 3.

Mesial view of hemisphere.

posterior calcarine of Cunninghame—is well developed. The area striata occupies an area the extent of which corresponds to the limits assigned to it by Campbell in his work on cerebral localization. The area is bounded on the external surface by the sulcus lateralis, on the mesial surface in front by the retro-splenial or sulcus calcarinus of Elliot Smith. Below it is limited by the sulcus recurrens. It is therefore extended to the full limit of its usual area (Figs. 2 and 3).

The brain was embedded in celloidin and sectioned. One hemisphere was stained for cells by toluidin blue. The other, which had been fixed for several weeks in bichromate was stained by the Weigert-Pal method.

The cell lamination appears to be normal in every way. The individual laminae are well defined, and, measured against the

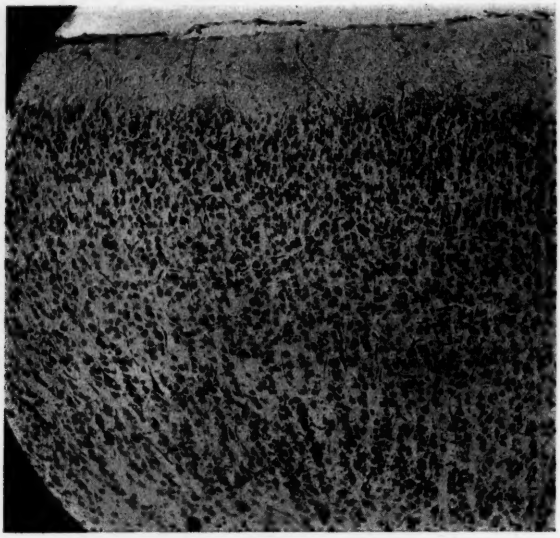


PLATE 2.

Microphotograph of the area striata.

same laminae in a normal dog, there is perfect agreement in the width of each lamina.

The characteristics of each lamina compared with the normal are as follows (Plate 2).

The lamina zonalis is the same width in both and is the usual acellular layer.

The lamina granularis externa is equally inconspicuous in both.

The lamina pyramidalis shows a succession of cells gradually increasing in size from the surface towards the deeper portion of the layer. In both the normal and the abnormal the cells are very regularly arranged and closely packed together. No difference can be observed between the two and they are both of the same width.

It is in the lamina granularis interna that changes are most likely to be found. The lamina is divisible into an outer and an inner portion with the stria of Gennari between them. The outer layer is the broader of the two and its small granular cells are the more numerous. The stria is narrow and not very conspicuous. This description applies equally well to the normal cortex as to the cortex of the anophthalmic puppy. At first the cells of this lamina in the abnormal animal showed a difference in that the granular cells stained less intensively than the cells of the other layers. Using the same fixative (formalin) and the same stain the same slight difference in staining intensity was shown in these granular cells in the normal dog.

The lamina ganglionaris is rich in cells of Meynert. They form a most characteristic layer of prominent cells of large pyramidal form. These are equally numerous in the normal and abnormal dog.

The lamina multiformis is the same in both cases and consists of cells of irregular size and sharply marked off from the subjacent white matter.

The Weigert staining was almost completely unsuccessful. This was not due to the method, for the same materials and procedure is in constant use by us and invariably answers most satisfactorily. No fibres were present in the cortex and the majority of the fibres in the optic radiation were non-medullated. It is difficult to be sure if this non-medullation is due to the abnormality or to the age of the animal.

The interest of these results lies in the factors that determine retrograde degeneration and reaction at a distance. Warrington was surprised to find that although he could easily establish retrograde changes in the spinal cells after section of the ventral roots yet on section of the third nerve he could not find corresponding changes in the nucleus. He quotes van Gehuchten, who says that degeneration of the third nerve nucleus after section of the nerve has not been established. Various factors have been suggested to account for this and evidence is accumulating that such factors as the distance of the section from the nucleus, and the manner in which the section is made, play an important part in determining the onset of retrograde changes. For instance, avulsion of the nerve seems more effective than simple section. Perhaps it may be assumed in the case of this abnormal pup that the quiet nature of the degenerative changes explains the absence of secondary effects in the ocular nuclei.

In regard to reaction at a distance Monakow states that the experimental results are conflicting. In his experiments where he enucleated both eyes in a new-born pup and six months later investigated the central nervous system he could find no changes

whatever. He records that all the fibres going to the occipital convolutions were non-medullated. We have found a similar imperfection in the medullation, but are not sure whether this is due to the age of the animal or to the abnormality.

On the contrary all observers are agreed that in old long-standing cases of blindness there are always to be found changes in the mid-brain centres and in the area striata. There would seem to be little doubt that in reaction at a distance the time factor is the important one. This may explain some of the discrepant results obtained in the cortical investigations of tabes and amputations.

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THE RESULT OF TREATMENT BY ARTIFICIAL LIGHT ON PHLYCTENULAR AND OTHER TUBERCULOUS LESIONS OF THE EYE*

BY

A. B. NUTT, M.B., M.Sc.

SHEFFIELD

MUCH attention has been paid recently to the action of light upon the body, and although its mode of action is not known, yet, on empirical grounds, it is being used extensively as a form of treatment in disease. We know that life is dependent upon the radiant energy from the sun, and recently it has been shown that the rays of short wave length have a profoundly beneficial effect on the growth and maintenance of the human body.

* Read before the North of England Ophthalmological Society, March 6, 1925.

The method of treatment by artificial light as practised by Finsen, for lupus, was to expose small patches of the lesion to the rays of the carbon-arc lamp, and by this means he obtained very gratifying results; but he noticed that not only did the patches exposed improve, but other patches not exposed to the rays did likewise; this observation led to the treatment of other tuberculous lesions by exposure of large areas of the body to the sun's rays, and also, in climates where sunshine is not obtainable, to the rays of the carbon-arc and mercury vapour quartz lamp, both of which are rich in the rays of a wave length less than 300 $\mu\mu$

Such exposure to the ultra-violet rays is being employed widely in many branches of medicine and surgery, in cases of lupus and psoriasis, in tuberculous lesions of bone, as at Leysin, Alton, and elsewhere, as well as in other types of tuberculous infection.

Further, during the last five years, remarkable advances have been made in the treatment of rickets, in that it was discovered that the disease could be cured by means of exposure to the mercury vapour quartz lamp (Huldchinsky, 1919-20), and also, that the onset of xerophthalmia in rats was very materially delayed by it. It was therefore natural that in cases of phlyctenules, which are admittedly more prevalent in people of strumous diathesis, living in bad surroundings, where sun is scarce, and food containing adequate vitamine scarcer, treatment by artificial light should be tried. It is now definitely known that ultra-violet radiation cannot actually take the place of vitamines, but if small quantities are present in the body, the exposure will mobilize them for use so that growth continues or the rickety condition ceases, as the case may be. Therefore, in applying such treatment it is essential that vitamine be supplied. This has been done in the form of cod-liver oil emulsion with hypophosphites.

Intractable phlyctenular conditions were treated, in years gone by, by local applications, with attention to regulation of the bowels and to tonics for the general health. Later, fats were given empirically, even cod-liver oil, as advised by Soelberg Wells in his text-book, published in 1870; the open air too seems to have been appreciated as beneficial, but why, was not understood.

Quoting from Wells: "Nothing is so injurious as to confine the patient to the dark on account of the photophobia, for in this way the eye will become so sensitive that no light will be borne," and further on, under phlyctenular corneitis, he advises visits to the seaside with sea bathing.

It was noticed at the Alexandra Hospital for diseases of the hip, that when the patients were moved into the open air, there was a decrease in the number and severity of the phlyctenules; it was found also that cases did better when removed to a

sanatorium, and more recently, exposure to the sun, particularly in Switzerland, has proved to be still more efficacious.

The typical picture of many cases of phlyctenules with their frequent relapses and intractableness to treatment is well known. The patients treated by exposure to the mercury vapour lamp in every case show marked improvement; the stoop in their attitude begins to disappear, they become generally more robust and their appetites improve. The child who comes under treatment weak and anaemic, irritable, crying whenever touched, burying its head in its mother's lap, soon becomes happier and stronger, and the appetite improves. The blepharospasm and lacrymation disappear, the skin looks healthier, and the older ones will tell you without any questioning that they are feeling better in themselves and that their eyes have been more comfortable since they started to have "sunshine." The phlyctens clear up gradually; in some cases relapses occur, but they are not so frequent after lamp treatment as they were before. In some cases the eyes remain quite quiet, and generally speaking, as is shown by the cases quoted,they remain quiet in all weathers, and at work or at school,while having the exposure; but if the treatment is stopped as soon as the eye is quiet, the condition tends to return and the patient goes back. In the older cases with such conditions as phlyctenular pannus and sclerosing keratitis, the eyes have quieted as they never did previously, and have become much less painful than before treatment, whilst vision has become clearer.

The routine of treatment has been as follows:

The patients strip and are exposed to the rays back and front; there is a nurse in charge who times the exposures, which, commencing with ten minutes per day for the first few days, are gradually increased to one hour per day. The eyes are protected by wearing London-smoke glasses; the room, of course, is suitably heated. Several patients are exposed at once. (The lamp used is supplied by Quartz Lampen-Gesellschaft M.B.H., Hanau.) The usual general and local treatment is employed, together with cod-liver oil.

The cases which have been treated fall under two headings:

(1) The chronic cases that have been under treatment for a long period previously, with little, if any, improvement.

(2) The recent cases treated as soon as they have appeared at the Out-Patient Department.

The first group comprise cases with histories extending from five months to four years before treatment with the ultra-violet rays was commenced. The value of these exposures in treatment can be best shown by a summary of some of the cases.

(1) Male, aged 35 years, Wassermann reaction negative. His right eye began to trouble him in *February*, 1923; he was first seen *May* 2, 1924, when he had a definite sclerosing keratitis; the cornea was hazy, the eye very red with well marked circum-corneal injection; the pupil was distorted and the iris muddy. Vision: hand movements only. He was treated with local applications, tonics and tuberculin (from which he got a severe re-action) until September 9, 1924, when sunlight treatment was commenced.

On that date vision was hand movements only, the eye was still as painful and injected as ever, and he asked to have it removed. When seen fourteen days later improvement had already commenced.

October 27 the cornea was clearer, there was no injection to be seen, and he volunteered the information that he could discern window frames, trees, and details of objects, and that his eye had never been so comfortable since it became bad.

December 29, 1924, tuberculin was stopped; he was seen regularly up to January 27 without any relapse; on that date vision was 6/36 under suitable conditions; the eye was quiet in spite of the fact that he had had a severe attack of bronchitis and been confined to bed for a week at the beginning of January.

On February 27 he had a slight localized injection on the inner side of the limbus; this was attributed to the use of dionin drops the strength of which had recently been increased to 4 per cent. from 2 per cent. The injection remained until March 4 when the drops were stopped. He had cod-liver oil emulsion throughout.

(2) Male, aged 16 years. First seen November 3, 1920. Vision: R. nil; L. 6/60. He had superficial ulceration of the cornea; there was no trachoma present. Later trachoma with pannus developed, and on July 7, 1922, he had a bad relapse this time in the left eye. On April 13, 1924, a note was made that he still kept on having relapses in spite of very energetic treatment as an in-patient for fourteen weeks.

Treatment was continued with local applications, tonics, and tuberculin, with no improvement, up to September 9, 1924, when he had a mixed pannus above, and lamp treatment was suggested.

December 19 he stated that he felt better and his eyes were quieter; there was less photophobia.

January 5 the eyes were quieter, the corneae were still hazy in the upper part and vascular, but they felt easier and photophobia was markedly less.

March 4, 1925, he stated that the eye had never been so quiet since treatment was commenced four years previously. Vision: R. 6/18; L. nil. Of course a great deal of permanent damage had been done to the eyes before lamp treatment was commenced, but they are more comfortable, and what vision there is, is better than before the treatment and the patient is more robust and happier.

(3) Male, aged 49 years. First seen February 3, 1922. Vision: R. and L. 6/6. He had marginal ulcers on the left cornea with peripheral scarring; there was some pigment on the lens, no keratic precipitates; fundus normal. He gave a family history of one sister dying from tuberculosis. He had frequent relapses with the appearance of fresh ulcers at the margin of the cornea; there was persistent circum-corneal injection with vascular ulceration, practically all round the corneal margin, and in June, 1924, he had an attack of iritis. The condition persisted and he was put on lamp treatment in September, 1924. He had been treated previously with local applications, tonics, and tuberculin.

Tuberculin was stopped on October 20, since then he has progressed very slowly, but getting definitely better all the time. The lamp exposures were discontinued for a time, and later recommenced at the patient's request.

February 27, 1925, the injection was much less, there was no photophobia and the eye was comfortable. There were two small raised patches still remaining at the margin, with vessels running into them.

(4) Male, aged 6 years, Wassermann reaction negative. The eye condition commenced June, 1923, but he was not seen here until October, 1923, since when he has been an in-patient here or at the Convalescent Home. He was seen at the Home at the end of last September. His condition was then serious, he was anaemic, weak, apathetic, and with no appetite at all; he lay quite still from morning till night, and to look at him he appeared simply skin and bone. He had periodic attacks of vomiting, with a distended abdomen. He was covered from head to foot with papular necrotic tuberculous sores, while on his feet there were, and, as a matter of fact, still are, typical tuberculous ulcers. There were bad phlyctenular ulcers over the centre of the right cornea; the eye was very injected, the lids were

red and swollen, with a bad ciliary blepharitis: his nose and the angle of his mouth were sore; everyone expected him to die.

October 20, 1924, he was put on to exposures with the mercury vapour lamp and slowly began to improve.

November 7 he had a fresh crop of phlyctens all round the corneal margin; these cleared up and his eye became quite quiet: it has remained so.

His general condition has improved enormously; practically all the skin condition is healed, the vomiting has ceased, his weight has increased; he can walk about and will play with other children.

(5) Female, aged 43 years. First seen November, 1921. She had iritis with an old interstitial keratitis in both eyes; that apparently settled.

September 15, 1922, she appeared with fresh ulceration at the corneal margin below. Tuberculin was used but not attended by much success; the eye remained red and painful. Two months ago she was put on lamp treatment and is now more comfortable, while the eye is quiet, the red patches having cleared up and the ulcers healed.

The report on these five cases must suffice as an indication of the result of treatment of old standing tuberculous and phlyctenular conditions by ultra-violet rays. In the first there was a sclerosing keratitis; in the second, pannus; in the third and fifth, persistent marginal ulceration; and in the fourth, a strumous keratitis, accompanied by general debility and an obvious tuberculous skin condition—a fairly good selection of cases.

Fresh Cases.—The treatment of early cases of phlyctenules has yielded so far quite encouraging results; the following are typical cases:

(6) Female, aged 33 years. First seen October 10, 1924. Vision: R. 6/9; L. 6/24. There were large phlyctenular nodules at the limbus on the left eye, with very marked circum-corneal and conjunctival injection. She gave a history of tuberculous glands in the groin and neck, the latter having been operated upon two years ago. She was put at once on to lamp treatment.

October 27, the eye was better but fresh nodules had formed. The exposures, together with cod-liver oil, were continued, in spite of which fresh phlyctens appeared in the right eye, the left being practically clear. The lamp was stopped for one month; at the end of this time, December 22, the right eye was quiet, but the left was worse than ever; she was treated again with the ultra-violet rays, and when seen on January 5 both eyes were quiet, and she stated that she felt better in herself and her eyes were more comfortable while she was having that treatment. Since then her eyes have both been perfectly quiet, and she insists that she is much better while having the treatment and wants to go on with it. Vision: R. and L. 6/6.

(7) Female, aged 14 years. First seen December 12, 1924. Vision: R. 6/6; L. 6/24. She had phlyctenular pannus in the left eye; the eye was very painful and red, with marked blepharospasm; she was put on to tuberculin and lamp treatment. One month later she developed two phlyctens on the margin of the right cornea, but the left eye was less painful and less injected, though the pannus was still present to some extent. One month later there was still some injection in the right, but no definite phlyctens, while the left showed only a few vessels invading the cornea at the margin. She was seen March 2, when both eyes were perfectly quiet. Vision: R. and L. 6/6.

(8) Female, aged 16 years. First seen August 26, 1924. Vision: R. and L. 6/18. She had phlyctenular marginal ulcers in both eyes; both were painful and injected with profuse lacrymation. She was at once started with tuberculin and lamp treatment, together with cod-liver oil.

October 27 the photophobia had disappeared and both eyes were clear with the exception of a little injection below in the left.

November 9 sunlight treatment was stopped.

November 18 she had a definite phlycten in the left eye with photophobia and a week later one developed in the right eye.

January 5 both eyes were quiet, she looked pale and suggested that she felt better while having the exposures to mercury vapour lamp, and that it had helped to clear her eyes up. Vision: R. and L. 6/6.

January 26 the right eye became injected below and on February 10 there was a definite fresh crop of phlyctens present. The sunshine was recommenced and by the end of February both eyes were quite clear.

(9) Male, aged 7 years. First seen January 20, 1925.

Phlyctenules almost all round the limbus of the right eye. There was marked photophobia and lacrymation, the lids were sore, the globe and circum-corneal zone were injected. The left eye was quiet, the nose and outer angle of the right eye were sore. He was exposed to the mercury lamp daily.

On February 2 there remained one large phlycten astride the limbus below, while the injection was still present.

February 18 the eye was perfectly clear and a facetted scar was present astride the limbus at about five o'clock.

February 21 the light treatment was discontinued. So far there has been no relapse; although he was a bad case; the condition completely cleared up in just four weeks.

(10) Male, aged 16 years. First seen November 5, 1924.

There was superficial vascular ulceration of the cornea at the margin. The circum-corneal zone was markedly injected; conjunctiva was engorged and chemosed; the pupil was small and irregular, re-acted sluggishly to light, and the iris was muddy. He was treated with local applications; cleared up and was discharged.

December 4 he returned with a strumous ulcer just outside the centre of the right cornea, a leash of vessels running into it. It became worse and he had to be re-admitted; he then had bright circum-corneal injection and the iris was vascular; there was much pain and photophobia. He was at once put on to lamp treatment together with cod-liver oil emulsion, in addition of course to local treatment. The eye cleared very quickly, and he had been discharged for only a week or so when his left eye flared up with strumous ulcer at about the centre of the cornea. The treatment was continued and both eyes were quiet by February 27.

March 4 both eyes quiet; he is sunburnt and looks the picture of health; there are two corneal scars remaining.

(11) Female, aged 15 years. First seen February 10, 1925.

Phlyctenules on the outer side of both eyes. She was put at once on tuberculin and lamp treatment; there was a very violent reaction to the tuberculin.

February 16 the phlyctens were still present, the eyes very red, there was blepharospasm and lacrymation. The treatment was continued daily and both eyes were perfectly clear by March 2.

These cases are taken from thirty cases which have been treated by exposure to the rays of the mercury vapour quartz lamp and are still being observed.

As far as can be seen at present, the benefit to the body as a whole, produced by exposure to the ultra-violet rays, re-acts upon the tuberculous and strumous conditions met with in the eye, for good, and such exposure will take the place of sanatorium and open-air treatment, the benefit of which seems to be due very largely to the effect of the spectral rays of short wave length.

The ordinary hospital patient cannot afford the time or the money for sanatorium treatment, and it is possible by means of the mercury vapour quartz lamp which is very rich in ultra-violet rays, to give patients the effect of sun treatment in a town—where the ultra-violet rays are cut off very effectively by a smoke screen—and with very little loss of time.

The results of the cases treated here seem sufficiently encouraging to warrant their publication, so that others may try treatment

along similar lines and more definite conclusions may be arrived at as to whether or not the ultra-violet rays are to be a permanent addition to our armamentarium in the treatment of phlyctenular and other tuberculous conditions.

This series of experiments was commenced in August, 1924, on a few selected cases, and since then, the number of cases has been increased; but as there is only one mercury vapour lamp in use in the Sheffield Infirmary, the number of cases treated has necessarily been limited. As far as possible the cases most intractable to treatment on ordinary lines have been chosen for this work. If the results continue to be as satisfactory as they are at present a much wider application of this method of treatment will be adopted, *e.g.*, probably a great majority of corneal ulcers will be treated in this manner.

I propose, at Mr. Pooley's suggestion, to continue this series of experiments and to extend the range of investigation to other non-tuberculous lesions.

I have carried out these observations by the kind permission of Mr. Pooley, on his cases, and I should like to thank him very much indeed for his generous assistance and support in this work.

A SLIT-LAMP

BY

M. S. MAYOU

LONDON

THIS instrument is designed to obviate some of the disadvantages attached to the ordinary Zeiss slit-lamp. One of the chief objects attained is the rapidity with which routine examination can be made with the instrument.

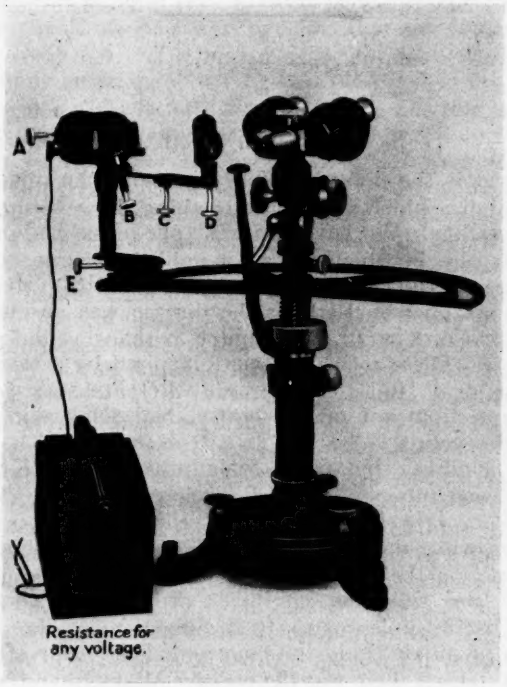
(1) When once the lamp is in focus no further adjustments need be made for the examination of any number of patients, and consequently the average examination does not require more than about one minute.

(2) The lamp and microscope move in unison so that one adjustment does for both focussing the image and directing the light.

(3) The instrument is portable and can be used on any small table with a glass top, and when not in use can be put out of the way.

(4) The slit can more accurately be focussed on any portion of the anterior part of eye.

As shown by the illustration, the lamp is carried on a semi-circular frame which is attached to the movable pillar of the corneal microscope. This semi-circular frame allows the lamp to be moved from one side of the microscope to the other, if so desired. Attached to the fixed pillar of the microscope is an arm carrying a knob which serves the double purpose of forming a screen on which the image of the slit can be accurately focussed by the



microscope. The patient's cheek is then brought up against the knob and the microscope and lamp are raised together for examination of the eye. The screw (A) provides a means of centring the lamp, the distance of the filament from the lens, and also for adjusting the direction of the beam. The screw (B) varies the size and shape of a slit and provides also a spot of light when required. Screw (C) alters the lateral position of the focussing lens and the screw (D) alters the vertical position. The screw (E) brings the whole lamp in focus further from, or nearer to the eye, and is extremely useful in getting sharp images of the slit on the

various planes of the cornea, iris, lens, and vitreous. The lamp has been in use for some time and it possesses all the advantages of the ordinary Gullstrand-Zeiss' slit-lamp in addition to those mentioned above. The lamp is made by Theodore Hamblin, Ltd., and although the particular model is fitted to a Zeiss Corneal Microscope there is no reason why it should not be adapted to any existing corneal microscope. It is fitted with a resistance which can be adjusted for use with any voltage.

ANNOTATIONS

The Open Mind

How great is the difficulty of keeping an open mind, a mind free of prejudice which will admit anything, however improbable, for consideration! We have all, every one of us, had occasion to regret that case in which the most unlikely diagnosis was the correct one. It did not occur to us, most probably because the mind was not open. Perhaps the disease was absolutely rare, perhaps it was rare in our own country, perhaps we did not obtain all the facts. These reflections were inspired by a case recorded by P. Knapp, of Bâle, in *Rev. gén. d'Ophtal.* for July, 1925. The patient, from a foreign country, had some skin troubles, violent irido-cyclitis and a positive Wassermann. The case was treated as syphilitic but failed to improve much. Knapp then discovered something which had previously been hidden by the intense ciliary injection, namely, a yellowish ring surrounding the corneae, while the slit-lamp revealed a mass of whitish yellow "corpuscles" on the pupil edge. Microscopic examination of a portion of the yellowish episcleral proliferation showed very numerous bacilli of leprosy. It is difficult to see how even the most open of minds could have prevented the error of diagnosis in this case. First there was the positive Wassermann, then there was the fact that leprosy had been thought of and the bacillus looked for and not found by those who saw and treated the patient in the first instance, and, lastly, the disease is said by Knapp to be unknown in Switzerland.

The Closed Mouth

The converse of the open mind is indicated by the above title. It is needful to be very careful about what we say to patients. It is notorious that even educated persons will in many instances,

half hear, half comprehend and often put a totally wrong construction on what the surgeon may have said to them. While we firmly believe in speaking the truth (it was the schoolboy who described a lie as an abomination to the Lord, but a very present help in time of trouble), there is no doubt that there are many occasions on which the truth may be inadvisable for more reasons than one. At times it is really difficult to know how much we ought to tell a patient, but experience helps us on most occasions. It is not needful to tell a very nervous lady with 6/6 and a single vacuole or streak of opacity in her lens that she has cataract; it will only worry her. If it be necessary to tell her anything we always confine ourselves to saying that the pupil of the eye is not quite so clear as it was half a century ago, but that it does not amount to more than fair wear and tear, or words to that effect; while if it be necessary for us to cover ourselves further, we suggest writing to her doctor, or seeing some near relative and explaining the facts of the case. One example which has come under our notice was the case of a small boy who cut his upper lid a good many years ago through the bursting of a ginger-beer bottle. The accident occurred while he was at the seaside; he was brought home to London and his family doctor sewed up the cut. When the eye was examined after the stitches had been removed it was found to have been perforated, and to have healed with a large inclusion of iris. It was explained to the father that an operation was advisable to try and free the iris which had been caught up in the wound. He allowed the operation to be done and the surgeon afterwards heard that he was contemplating bringing an action against his own doctor as he understood from what had been said that the eye had been caught up in the stitches! Again a verdict to the effect that a patient has incurable optic atrophy which will inevitably lead to blindness may result in a coroner's inquest.

Thus far we have been considering our verbal relations with the patient on the subject of the eye malady; it remains to say a few words about what we should say to a patient who has recently seen another eye surgeon. We have nothing but *saeva indignatio*, fierce rage, against the man who tries to give the patient the impression that his last oculist was in the wrong. The desire to "tell the other fellow off" may be inherent in the human breast, but it should be sternly repressed. It is so much better and more honest to say to a patient: "well, your eyes have changed a little since you saw Mr. So and So," than to say: "of course your glasses are quite wrong," while we make an infinitesimal variation in the strength or axis of a cylinder. There are times, of course, when mistakes have been made and it is our duty to say so; but we hope that the surgeon, in what he may

say, will bear in mind those old old biblical maxims: "Do unto others as you would have them do unto you," and "with what measure ye mete it shall be measured to you again."

Proposed Optical Practitioners Bill

According to the *Pharmaceutical Journal and Pharmacist*, January 23, 1926, a draft of a proposed Bill bearing this title has been sent to that journal. It aims at securing the registration of optical practitioners and regulating the practice of sight testing and optical dispensing. The details as given by the journal are as follows:

"The Bill defines optometry as sight testing or the examination of the human eye for the purpose of ascertaining any departure from the normal state of vision, measuring its functional powers, and adapting mechanical means for the aid thereof, and the expression includes the giving of any treatment, advice, or attendance on or to any person as preparatory to, or for the purpose of, or in connection with the processes aforesaid, and any treatment, advice, or attendance usually given by optometrists or refractionists. A dispensing optician is defined as a person who dispenses optical prescriptions and appliances.

"According to the Bill any person over the age of twenty-one shall be entitled to be registered as an optometrist if (*a*) he satisfies the Board that he holds a recognized certificate; (*b*) if he satisfies the Board that he has been engaged in the practice of optometry in Great Britain for five years before the passing of the Act and passes a practical examination in optometry deemed by the Board sufficiently comprehensive to safeguard the public; application for registration under this rule must be made within six months after the passing of the Act; or (*c*) having completed the prescribed training, has passed the prescribed examination.

"Any registered optometrist shall be entitled to practise optometry, to dispense optical prescriptions and appliances, and to give certificates relating to visual acuity or visual defects, which shall be recognized as valid by any local or central authority or Government department in any part of Great Britain.

"Any person over the age of twenty-one may be registered as a dispensing optician if he has been engaged in the business of dispensing optical prescriptions and appliances for five years before the passing of the Act (application to be made within six months) or has completed the prescribed training and has passed the prescribed examination. This registration will not entitle the holder to practise optometry."

The Bill sets out penalties of unregistered practice. "For unregistered practice as an optometrist the maximum penalty is to

be £100, and as dispensing optician the maximum fine is £20. No person, unless he is registered, may sell or offer for sale, or exhibit samples of, or accept orders or commissions for, or carry stocks of spectacles or eyeglasses. The maximum fine for this offence is to be £10. *Bona fide* wholesalers, however, are allowed to carry out transactions in the ordinary way of wholesale dealing. Under certain conditions a body corporate may carry on the business of optometry, if it carries on no other business than optometry or some business ancillary to the business of optometry, and if a majority of the directors and all the operating staff are registered optometrists.

"Nothing in the Act is to prevent the carrying on of the business or practice of optometry, or the clinical training of students in optometry in any hospital of any description or any optometric school approved by the Board.

"The Bill proposes a registration fee of not more than £5, and an annual fee of not more than £3 for an optometrist, and a registration fee of not more than £3 and an annual fee of not more than £2 for a dispensing optician.

"The first registrar is to be appointed by the Minister of Health and thereafter by the Board. Until the Board has compiled the register there is to be a temporary register, approved by the Minister of Health. The first Board is to consist of twenty-two persons as follows: Two appointed by the General Medical Council; five persons, one to be appointed by each of the senates of the Universities of Edinburgh, Bristol, London, Manchester, and Sheffield; twelve to be elected by and from the persons on the temporary register; and three appointed by the Minister of Health, of whom one is to be a dispensing optician, and the remaining two optometrists, but not included in the temporary register. This Board is to hold office for not more than three years, and the constitution of all subsequent Boards is two persons appointed by the General Medical Council, the five university representatives, and fifteen persons elected from the register.

The Bill provides for the removal from the register or for suspension from practice of a practitioner who has been found guilty of a felony or misdemeanour, or of an offence against the Act, or who has been guilty of any disgraceful or infamous conduct in a professional respect. The Board is also to have the power to make regulations concerning training, examinations, the fixing of proper titles, and for controlling advertising."

We are glad to see that "the proposed Bill says nothing in the Act shall operate to prevent the practice of optometry by a registered medical ophthalmic specialist."

It is hardly necessary for us to point out that such a Bill, if passed as here set out, would be most detrimental to the public

welfare for reasons which have already been given both in the report of the Departmental Committee on the "Prevention and Causes of Blindness," and the report of the Council of British Ophthalmologists on "Sight-testing Opticians." At the same time we fully realize the desirability that opticians should hold some qualification for the making of optical instruments and appliances.

ABSTRACTS

I.—NEUROLOGY

(1) **Pesme, Paul (Bordeaux).—Typical clinical characteristics of retrobulbar neuritis associated with ethmoidal and sphenoidal sinusitis. (Caractéres clínicos particulares de la neuritis óptica retrobulbar por etmoidoesfenoiditis.)** *Arch. de Oftal.*, Vol. XXV, p. 18, January, 1925.

(1) Remarking on the difficulty of tracing the origin of many cases of retrobulbar neuritis, and on the harm of delay in attacking their primary cause, **Pesme,** from clinical observations, suggests the following syndrome as typical of a neuritis secondary to inflammation of the ethmoid or sphenoid cells:

(1) An absolute central scotoma, for white and colours, leaving the remainder of the field normal.

(2) Signs of inflammation at the papilla, with redness and oedema, instead of the classical picture of a normal fundus, or simply a pallor of the temporal segment of the disc.

This association of a central absolute scotoma with a papillitis, provides, in the author's opinion, sufficient justification for rhinological exploration.

W. S. DUKE-ELDER.

(2) **Larsson, Sven W. (Stockholm).—Choked disc in nephritis.** *Acta Ophthal.*, Vol. I, Fasc. 3, 1924.

(2) **Larsson** discusses the occurrence of choked disc in nephritis generally and reports eleven cases in which he observed it. All the cases were examined with the Gullstrand ophthalmoscope, and all showed increased intracranial and intrathecal pressure, the latter being found in one case to be as high as 600 mm. fluid pressure. Many of the cases had good visual acuity, and in two it improved slightly after lumbar puncture.

He reviews the literature on the subject of the early diagnosis of choked disc and its distinction from purely albuminuric neuroretinal changes and comes to the conclusion that the occurrence

of choked disc in certain cases of renal disease with high blood pressure is much more common than is usually supposed. It may be the only change in the fundus, but is more frequently accompanied by retinal changes. In some of the cases reported a post-mortem examination was performed and no sign of inflammatory change in the optic nerve could be found. Larsson considers that the nerve affection is a true papilloedema and that it cannot be explained by one or other of the theories advanced with regard to the retinitis of nephritis. He holds that at least part of the clinical picture of the retinitis may be due to increased intracranial pressure. Choked disc may occur too in cases with high blood pressure without there being any clinically demonstrable renal disease.

E. H. CAMERON.

(3) **Uhthoff (Breslau).—A contribution to the inflammatory affections of the optic nerve in arterio-sclerosis. (Zu den entzündlichen Sehnervenaffektion bei Arteriosklerose.)** Abs. *Zentralbl. f. d. gesamte Ophthal.* Heidelberg Congress, July, 1924.

(3) **Uhthoff** draws attention to a group of cases of neuritis, and neuro-retinitis in which arterio-sclerosis must be taken as the cause. In a short survey of the known damage to the optic nerve trunk by sclerotic changes in the internal carotid and ophthalmic arteries, he draws attention to the visual disturbances as a result, and to the ophthalmoscopic changes. He expresses his conviction that a high degree of visual disturbance and a corresponding conspicuous atrophy of the optic nerve are not a result of this condition. Uhthoff in addition does not believe that sclerosis of the carotid or the ophthalmic arteries plays an essential part in the production of retrobulbar optic neuritis. There is a congenital condition of the intracranial portion of the optic nerve, where the nerve is bean-shaped in section with the ophthalmic branch of the carotid fitting into the recess. This condition is not sufficiently taken into account. The cases, however, where by such local pressure by the ophthalmic artery, real conspicuous neuritis and papillitis occur are rare. Oppenheim and Simerling found them anatomically; Stoelting describes bilateral neuritis which has a very chronic course and which shows little inclination to atrophy. In cases where there have been cerebral complications, from arterio-sclerosis, such as softenings and haemorrhages, optic neuritis is rare. Uhthoff has observed only one group of cases, where, without any cerebral complications on the ground of arterio-sclerosis, there is a neuro-retinitis and a neuritis, and which is unilateral although it may be bilateral at intervals. This type has a rapid course and ends after a rapid retrogression of the inflammatory appearances,

leaving an optic atrophy. There is a resulting serious defect of the visual acuity, and a loss of visual field. The ophthalmoscopic appearances of neuritis disappear in such a relatively short time that often only the picture of atrophy with narrowed vessels presents itself.. Inflammatory cloudiness affects the papilla and the retina adjacent, and it may cover the retinal vessels. The appearance of the structures concerned is greyish white, and suggests anaemia.

Uhthoff assumes that there must be an obstruction to the circulation in the central artery and also in the central vein, although this is not complete. The ophthalmic picture is one between thrombosis in the central artery, and a similar condition in the vein. The anaemic appearances do not reach so far into the retina as in a blockage of the central artery, and the cloudiness of the papilla is much more marked than in that condition. It corresponds more to the picture of a definite hindering of the venous reflux without leading to actual haemorrhages at the periphery. There must be an arterial as well as a venous hindering of circulation and a definite sclerosis in the vessels themselves. This is shown by the high blood pressure and other general arterio-sclerosis.

S. SPENCE MEIGHAN.

(4) **Elsberg, Charles A. (New York City).—Concerning papilloedema in tumours of the brain and its surgical treatment.** *Arch. of Ophthal.*, July, 1924.

(4) **Elsberg's** article is written from the point of view of the general surgeon. He begins by emphasizing the importance of the distinction between papilloedema and optic neuritis, and states that the former "must and soon will be considered a late symptom of brain tumour." This is particularly so in the cases of cerebello-pontine angle tumours when the physical signs are so typical that the correct diagnosis can be made before the occurrence of disc changes. The proper time for surgical treatment is before the tumour has become so large that it causes—directly or indirectly—pressure on the aqueduct of Sylvius, with a resulting hydrocephalus and papilloedema. The appearance of papilloedema in these growths may be sudden and its progression very rapid—a case is recorded where a swelling of 3D. increased to 6D. within four days. Of 30 patients examined and operated on, 19 showed a higher swelling on the side of the growth; 5, equal swelling in the two eyes and 6 none at all. In supratentorial growths the degree of swelling of the two sides varies greatly; this is due to the variety of factors causing increased intracranial pressure. These factors include: the amount of internal hydrocephalus, the degree of hyperplasia of the affected hemisphere, and the actual size of

the tumour. Distension of the contralateral ventricle is very frequent in unilateral growths, and is in all probability the cause of contralateral papilloedema. In some cortical and subcortical frontal lobe tumours, homolateral optic atrophy with contralateral papilloedema is not uncommon—this is of considerable localizing value, though of course the condition is well known in association with pituitary growths also. An important point is that this condition may be mistaken for changes due to ethmoiditis, and operation delayed in consequence. Tumours in the most anterior parts of the frontal lobes may reach a considerable size, and dense growths over some part of the motor area may cause advanced signs, before the occurrence of disc changes. Again, papilloedema may be absent in some cases of brain tumour because the growth has compressed a large central artery so that there is extensive secondary softening. The author regards papilloedema even of slight degree as a very serious matter demanding relief as soon as possible. He has never seen return of vision after it has once been lost, whereas, with early operative interference, blindness can be prevented in the majority of instances. The post-operative subsidence of swelling in cerebellar tumours is usually rapid at first, from 2-3D. diminution within the first week or fortnight, and thereafter the process is slow, some months passing before the discs become flat. In supratentorial growths the recession is more gradual, and occasionally may not begin for several weeks.

When the intracranial growth cannot be removed, the author considers that a properly placed decompressive operation will have a marked beneficial influence on the fundus changes, provided that these are not too advanced. Puncture of the corpus callosum is sometimes of value in these cases but very often fails to accomplish the desired result. With a view to reducing intracranial pressure during the time required for the necessary investigations preliminary to operation, the author mentions the following procedures:

(1) Repeated lumbar puncture, provided that the tumour is not in the posterior fossa. Should the tumour be located here part of the cerebellar lobes may prolapse into the foramen magnum, and exert pressure on the medulla with fatal results.

(2) Repeated withdrawal of fluid from the ventricles through a small trephine opening.

(3) Intravenous 5-15 per cent. saline or 25 per cent. glucose or dextrose.

(4) Administration of one ounce of magnesium sulphate by the mouth every four hours, or if the patient cannot swallow, 3 oz. of the salt in 6 oz. of water by the rectum four-hourly.

F. A. WILLIAMSON-NOBLE.

(5) **Igersheimer, J. (Göttingen).—*On the involvement of the optic nerve in tuberculous meningitis.* (Über die Beteiligung des Opticus bei der Meningitis tuberculosa.)** *Arch. f. Ophthal.* Vol. CXIV., 1924.

(5) In his summary of an analysis of ten cases of tuberculous meningitis **Igersheimer** draws attention to the fact that in spite of the presence of solitary tubercle in the brain and the turbidity and increased pressure of cerebro-spinal fluid the optic disc may be anatomically as well as ophthalmoscopically normal: and further, that even a marked lymphocytic infiltration of the pia and septa in the retrobulbar portion of the optic nerve is not necessarily associated with any ophthalmoscopical change in the papilla.

In the cases where there is blurring of the disc the condition is often that of a combination of papillitis and papilloedema, or of the latter alone.

In none of his cases were histological changes of a specific character found throughout the course of the optic nerve: observations to the contrary in the literature of the subject must be regarded as exceptional. In his cases examination for tubercle bacilli was always made at different levels of the optic nerve and in several they were found in the orbital portion, but they were not necessarily the cause of the changes present.

Large mononuclear cells were regularly found in the subarachnoid space of the optic nerve (as well as in the exudate at the chiasma) their numbers diminishing anteriorly but usually increasing again in the *cul-de-sac* in front. Their number in the latter situation, however, had no apparent relation to the conditions in the optic nerve or disc.

The author does not think that these cells are derived from endothelial or adventitial cells in the orbital portion of the nerve: it is probable that, like the tubercle bacilli, they are carried forward mechanically into the subarachnoid space from the exudate at the chiasma.

It is difficult to say how far toxins were carried forward in the same way and set up changes. The slight inflammatory infiltration in the orbital part of the optic nerve might possibly be of toxic origin, but again it is impossible to say whether the toxins set free by the degeneration of cells in the chiasma exudate were of a specific character or not.

THOS. SNOWBALL.

(6) **Greenfield, J. G., and Gordon Holmes.—The histology of juvenile amaurotic idiocy.** *Brain*, Vol. XLVIII, Pt. 2, 1925.

(6) The two cases described by **Greenfield and Gordon Holmes**, in one of which a post-mortem examination is carefully detailed with a very comprehensive histological account, are of great value

in the pathology of this rare disease. The original Tay-Sachs disease was supposed to be confined to the Jewish race and to appear at a very early age. Later observers, F. E. Batten among the first, described cases with similar symptoms and with a similar pathology, occurring at a later age and in non-Jewish races. The cases here described belong to this type. The patients were both members of one family of seven, the second and fourth respectively, the remainder of which was healthy. The family history showed no nervous stigmata. The first patient's history began at the age of nine, the earliest symptom being that of defective vision. At that time there were no definite ophthalmoscopic signs, but these, in the shape of fine granular pigmentary changes in the regions of both maculae, made their appearance a few months later. Mr. Leslie Paton reported some two years later that there was then extensive macular and perimacular atrophy of the retina, extending up to the margin of the discs and for a corresponding radius round the maculae. The disease rapidly progressed, the patient became blind, paralysed and epileptic and died some five years after the first symptoms. The second child also developed defective vision at the age of nine and the disease ran a very similar course for the three years he was under observation. He is at present in an institution for mentally defective children.

The chief interest of the paper will be found in the careful histological description of the material from the first case, which is considerably assisted by numerous excellent illustrations. Any useful abstract of this part of the paper is impossible; it must be read in the original. The authors point out that the most striking feature in the histological changes in the retina was undoubtedly the degeneration of its outer layers and their replacement by proliferated neuroglia, while the inner layers, that is the nerve fibre, ganglion cell, inner reticular and inner nuclear layers, remained intact or were affected much less severely. The fact that even in the earliest phases of the disease degenerative changes were recognizable in the internuclear layer, in which the efferent processes of the rod and cone elements arborize, suggests strongly that the disease first affected the cell-bodies of these elements and thereby led to a degeneration of both their afferent and efferent processes, or that it involved simultaneously the whole neuron unit. The former view corresponds more closely with the neuronic changes found in the rest of the central nervous system. The next stage was the replacement of the degenerated external layers of the retina by proliferating neuroglia, followed by a proliferation of the pigment epithelial cells and an invasion of the degenerating retinal layers by them. It is true that in a few places there was an obvious loss of elements in the inner nuclear layer. As the only nuclei affected were those of the outer border of the layer which

were in immediate contact with the degenerated tissues, and as these changes in the inner nuclear layer were found only where the glial proliferation was intense, they may be regarded as secondary. It could scarcely be expected that all these elements should persist unchanged after their processes in the sclerosed internuclear layer had been destroyed. In addition to these pronounced degenerative changes in the outer layers of the retina, there was an affection of the nerve cells of the ganglion layer similar to that which was found in the cells of the central nervous system.

Greenfield and Gordon Holmes then sum up the results of the observations of other authors and state that: "The retinal changes in the juvenile type of amaurotic idiocy may be therefore defined as a primary change in the ganglion cells, combined with an independent degeneration of the outer neuronic elements of the retina, which in some cases extends to the inner nuclear and inner reticular layers. This degeneration is followed by a glial sclerosis of the affected areas, and a proliferation of the pigment epithelial cells which wander into the degenerated tissue. It is this affection of the outer layers that distinguishes the retinal lesions of the juvenile from those of the infantile type of family amaurotic idiocy. In the latter, the essential changes are confined to the ganglion cell layer, though oedema of the internuclear layer has been described."

The paper includes a very complete bibliography and merits careful study by those interested in the subject.

E.E.H.

(7) **Behr, C. (Hamburg).—On the topographical diagnosis of paralysis of the sixth nerve. (Zur topischen Diagnose der Abduzenslähmung: Zugleich im Beitrag zur Diagnose der Erkrankungen in der Gegend der Fossa pterygo-palatina.)** *Zeitschr. f. Augenheilk.*, p. 293, May, 1925.

(7) The sixth nerve with its long intra- and extracranial course is the most susceptible of all the cranial nerves to secondary involvement. Behr enumerates from the anatomical point of view, the many symptom complexes in which it shares, and claims to have established a new syndrome of a very definite localizing value, which he illustrates by three cases.

He considers that an isolated and synchronous paralysis of the second division of the trigeminal and the abducens denotes a lesion in the upper part of the spheno-palatine fossa. The second division of the fifth nerve is involved after its exit through the foramen rotundum and before it enters the sphenoidal fissure, the sixth as it occupies the lowest level in the cavernous sinus. The lesion is paralytic in both cases, but in one of his patients the trigeminal involvement was accompanied by a neuralgia of

the anaesthesia dolorosa type. In the vast majority of cases such a lesion in this locality means a malignant tumour originating in one or other of the accessory sinuses.

By making use of the function of the spheno-palatine ganglion in the reflex secretion of tears he suggests a further refinement in localization which he has verified clinically. If, on the exhibition of, *e.g.*, liquor ammoniae, reflex lacrymation is retained, the neoplasm is situated posterior to the ganglion in the upper part of the fossa; if the reflex is lost, it is in the upper and anterior part of the fossa. In the first case it is most probably a neoplasm originating from the sphenoidal sinus, in the second from the maxillary antrum.

W. S. DUKE-ELDER.

(8) **Spiller, William G. (Pennsylvania).—Ophthalmoplegia internuclearis anterior: a case with necropsy.** *Brain*, Vol. XLVII, Pt. 3, 1924.

(8) **Spiller's** case is probably unique in that it represents the only case of ophthalmoplegia internuclearis anterior in which a complete necropsy has been performed. The various types of associated lateral ocular palsy are:

(1) Neither eye when attempting to follow an object to one side—say the right—can move beyond the middle line, but the left eye can move to the right in convergence.

(2) With both eyes open, neither can follow an object to the right, but the left can do so (by a convergent movement), if the right be covered.

(3) The right eye can follow an object to the right, but the left cannot, except in convergence.

(4) Both interni may be paralysed for conjugate movement.

(5) Neither eye can follow an object to the right and the left cannot do so even in convergence.

The case reported occurred in a woman, aged 46 years, who died from heart failure, infarct of the lungs and a vascular lesion in the pontile tegmentum. The onset was sudden with a sensation of fullness in the head, of numbness down the left side, and slight interference with speech. There was marked divergent strabismus with complete loss of action of both internal recti in right and left lateral movements. In the associated movement of accommodation, however, both internal recti acted. Other movements were normal except for a possible paresis of the left superior oblique muscle which was difficult to detect on account of the patient's condition. There was no hemianopia and the fundi were normal.

Microscopic examination of the brain revealed the following:

(1) Each abducens nucleus was normal together with its intrapontile fibres. There was no softening anywhere near the nuclei.

(2) There was softening of the posterior longitudinal bundle, but the upper level of this is not given definitely except that it corresponds to Obersteiner's Fig. 172 (*Anleitung beim Studium des Baues der Nervosen Zentralorgane*, 5th edition, 1912, p. 402.) At the level of the corpora quadrigemina the softening implicated the tegmentum on each side of the raphé to about the posterior fibres of the pyramidal tracts.

(3) The left nucleus trochlearis was destroyed in its lower part, the area of softening implicating the left posterior longitudinal bundle, and the ventral portion of the right.

(4) The oculo-motor nuclei were intact, but some of their fibres passed through the degenerated area.

(5) Many small haemorrhages were found round the vessels in the cerebral peduncles.

The author then proceeds to a critical examination of the reported cases of paralysis of associated lateral movements of the eye and notes that all the clear cases of ophthalmoplegia internuclearis anterior so far recorded lack any necropsy report.

F. A. WILLIAMSON-NOBLE.

(9) **Valude, E., Cirot, L., and Schiff-Wertheimer.—The recovery of a case of total paralysis of the eyes and of the face following upon a confinement. (De l'évolution favorable d'une paralysie totale des yeux et de la face survenue après un accouchement.)** *Ann. d'Ocul.*, CLXI, p. 614, August, 1924.

(9) A case is described in detail, with clinical and laboratory investigation, of a woman, aged 20 years, in whom, eight days after confinement, **Valude, Cirot,** and **Schiff-Wertheimer** noticed the onset of diplopia. Gradually total paralysis of the extraocular muscles developed, excepting for slight power of elevation of the right eyelid. The vision was reduced to one-third. Eleven days after the first onset of paralysis of the eyes, there developed paralysis of the right side of the face, and a week later still, of the left side of the face. About five weeks after the onset, slight movements of the eyeballs reappeared. A few days later a course of treatment with radio-therapy for the whole of the skull was started. Within three months from the onset, with no special treatment apart from radio-therapy, complete recovery took place.

Various investigations are described. The Bordet-Wassermann reaction was negative. The diagnosis was considered to rest between that of cerebral tumour with haemorrhage, as causing the onset and in which recovery took place as the result of radio-therapy, and secondly of serous ependymitis.

HUMPHREY NEAME.

(10) **Márquez, M. (Madrid).—The Argyll Robertson reflex. (Las Vias del Reflejo Pupilar a la luz y sus Alteraciones funcionales, especialmente el Sintoma de Argyll Robertson y sus diversas Variedades.)** *Arch. de Oftal. Hispan-Amer.*, pp. 57-91, February, 1925.

(10) In a long and detailed paper illustrated by pertinent clinical cases **Márquez** discusses the anatomy and physiology of the pupillary reflex paths with special reference to the Argyll Robertson phenomenon.

The conclusions he comes to are these:

(1) The Argyll Robertson pupil is caused by an interruption of the pupillary reflex paths in the intermediate neurones between the corpora quadrigemina and the anterior part of the third nucleus; the motor paths uniting the cortex to the nuclei of accommodation and convergence are intact, as are also the peripheral neurones uniting these nuclei with the ocular muscles.

(2) Miosis, although a frequent accompaniment, is not a necessary or invariable one. It should be considered rather as a complication, the normal condition in the syndrome being a mild mydriasis.

(3) Syphilis, although the most usual, is by no means a constant factor in the aetiology.

(4) Depending on the site of the lesion between the primary optic centres and the third nuclei, especially in its relation to the decussation of fibres which occurs in this region, the following varieties are met with:

(*a*) Total bilateral—complete abolition of light reflex, direct and consensual; retention of convergence—the most common (esp. Tabes, G.P.I.).

(*b*) Total unilateral; rarer.

(*c*) "Unilateral simple"—on one side abolition of the direct reflex and conservation of the consensual on both sides—rarer still.

(*d*) A group of less typical and still less well-known anomalies, depending on a lesion in the neighbourhood of the decussation referred to.

(i) Conservation of the direct reflex on both sides, with abolition of the consensual.

(ii) Abolition of the direct and conservation of the consensual.

(iii) Conservation of the direct on both sides with abolition of the consensual on illuminating the temporal parts of the retina; abolition of the direct with conservation of the consensual on illuminating the nasal retina.

For the anatomical rationale of these various forms the original paper should be consulted.

W. S. DUKE-ELDER.

(11) **Skotnicki, S. H. (Warsaw).—The influence of radio-therapy on the ocular symptoms of cerebral tumours. (Sur l'influence de la radio-thérapie sur les symptomes oculaires dans les tumeurs cérébrales.)** *Arch. d'Ophtal.*, July, 1925.

(11) In this paper the notes of 20 cases with the results of treatment by X-rays are reported. The cases, which occurred in the Nerve Clinique of Dr. Flatau, are divided into three groups.

Group I contains ten cases of hypophyseal tumour. The results of treatment are considered encouraging by Skotnicki and are tabulated as follows:

In all there was improvement in the general condition with loss or diminution of headache and cessation of vomiting. In six cases there was definite improvement in vision, usually with enlargement of the field. In one case there was a notable gain in vision, but of brief duration, and in one case blindness ensued in spite of treatment.

Group II included three examples of cerebral tumour. In the first case the general condition improved but the optic nerves became atrophic; case 2 showed no improvement of any kind; case 3 lost the headache and vomiting and there was a steady gain in visual acuity.

Group III contained seven cases of tumour of the cerebellar or ponto-cerebellar region. In three of these amelioration of the symptoms occurred but in only one was it sufficient to enable the patient to resume his occupation.

J. B. LAWFORD.

(12) **Davis, Frederick Allison (Madison, Wis.)—Tower skull. Oxycephalus.** *Amer. Jl. of Ophthal.*, July, 1925.

Lerner, Macy L. (Rochester, N.Y.)—Oxycephaly with ocular complications. *Amer Jl. of Ophthal.*, July, 1925.

(12) **Davis's** account of this condition covers some twenty-eight pages and is well illustrated. He gives details of seven cases observed by himself within the last five years, the severity of the condition varying from a moderate defect in vision with slight skull deformity, to the most extreme type of pointed skull with marked optic atrophy. The deformity is defined as a congenital malformation of the skull due to premature synostosis of certain sutures of the base and vault, producing a high, pointed, or dome-shaped configuration of the skull, with varying exophthalmos and optic atrophy. With regard to terminology, Davis prefers tower skull to oxycephaly, dividing the cases into: (1) The mild form, or dome-shaped tall head; and (2) the severe form, or high pointed type in which there is often a protrusion at the bregma. The condition consists essentially of a short, broad, and abnormally high skull; scaphocephaly, on the other

hand, is a long narrow skull, while plagiocephaly is one with asymmetrical synostosis. Premature synostosis being the basis of the condition, it is important to know the sutures most commonly affected. Dock finds that the sagittal suture is most commonly affected, Osler the sagittal and coronary, Schuller the transverse sutures and fissures, the sagittal remaining open and allowing the skull to develop greatly in height. Davis is inclined to agree with the last of these descriptions since early closure of the sagittal suture would probably result in scaphocephaly. Rickets is excluded as a cause of the premature synostosis because it was present in only 3.5 per cent. of the recorded cases, also because suture closure in rickets is usually delayed rather than premature. Syphilis, meningitis, pre-natal osteitis and pituitary disorders are all rejected by the author as possible causes, and he prefers to regard the condition as a developmental anomaly comparable with polydactylism, cleft palate, etc. The condition is commoner in males and some hereditary influence can often be made out. The chief signs and symptoms are:

(1) Impairment of vision, usually more marked in one eye, advancing up to a certain point and thereafter remaining stationary. Papilloedema has been observed in the earlier cases, being due to increased intracranial pressure; the optic atrophy is said to be of the secondary type. Another aetiological factor, however, is the stretching and kinking to which the nerve is subjected.

(2) Exophthalmos, frequently so marked that the lids cannot be closed. This is due to crowding down of the frontal lobes, causing the roof of the orbit to become almost vertical, and to bulging forward of the greater wing of the sphenoid which also causes shallowing.

(3) Strabismus, usually divergent, though in a few cases it is convergent. The movements of the eyes are usually good.

(4) Nystagmus, due to early amblyopia.

(5) Skull deformities as seen by X-rays, comprise thinning of the bone with marked digital impressions from the underlying convolutions, and exaggerated vessel markings; displacement of the fossae, the anterior being distorted and shortened and the middle frequently pushed down to the level of the posterior. The frontal and ethmoidal sinuses may be obliterated in severe cases and there may be a definite protrusion at the anterior fontanelle. Suture obliteration is usually seen.

(6) Headache is usually severe, rarely accompanied by vomiting and generally disappears about the age of eight.

(7) Convulsions are rare and the patient's mentality is usually normal. With regard to treatment, subtemporal decompression has yielded some good results, but rather a large number of cases have had a fatal termination from meningitis, pneumonia, etc.

Hildebrand, as reported by **Lerner,** operated five times on three children with tower skull. The optic foramen was reached by separating the periosteum, chiselling a groove in the roof of the orbit to the foramen and gouging away its upper margin. Atrophy was arrested in his cases, and improvement of vision followed.

F. A. WILLIAMSON-NOBLE.

(13) **Verhoeff (Boston).—The cause of keratitis after Gasserian ganglion operations.** *Amer. Jl. of Ophthal.*, April, 1925.

(13) **Verhoeff** is "convinced that neuroparalytic keratitis is essentially an exposure keratitis" because of the absence of dendritic or punctate lesions and because of the exact resemblance between the two conditions. The supposition that neuroparalytic keratitis is caused by diminished lacrymal secretion is dismissed on the grounds that, were it true, the occurrence of this form of keratitis should be the rule rather than the exception after operations on the Gasserian ganglion. Despite this statement, however, the author seems to favour acceptance of this theory. Thus, he mentions six consecutive cases of the disease in which no lacrymation occurred in the diseased eye on blowing smoke into the sound eye, whereas in seven patients with insensitive corneae, but no keratitis, lacrymation did occur. He suggests that the condition may be caused by interference with the great superficial petrosal nerve during its passage underneath the Gasserian ganglion, some of the fibres of this nerve being in all probability concerned with production of the lacrymal secretion. With regard to treatment no mention is made of the usual procedure of sewing the lids together, but a case is described where, by a special apparatus, the eye was kept constantly moistened with Ringer's solution and the corneal epithelium was restored within forty-eight hours. The apparatus then failed to function and the epithelium again came off. The conjunctival sacs were now filled with an ointment of vaseline 62 grams, Scharlach R. 10 grams, Ringer's solution 28 c.c., the eyes bandaged, and within three days, the corneal epithelium was again intact. This condition was subsequently maintained by dropping Ringer's solution into the eye every two hours during the day.

F. A. WILLIAMSON-NOBLE.

(14) **Bruner (Cleveland).—Tumour of the pituitary body with unusual changes in the fields.** *Amer. Jl. of Ophthal.*, April, 1925.

(14) This interesting paper by **Bruner** serves to show how puzzling the diagnosis may be in an early case of pituitary tumour.

The patient was a male, aged 42 years, first seen in February, 1922, with a history of defective vision for two months. The vision of the right eye with -0.5D. sph. was 6/9 and that of the left 6/12. The discs were hyperaemic with hazy edges, but there is no mention of any swelling. Fields showed the outer limits for form normal in each eye, but in the right eye there was a large paracentral colour scotoma for red and blue, while in the left, there was a less definite paracentral one down and out. Tobacco, of which a considerable quantity was smoked, alcohol, and the fumes from accumulators were considered as possible causes of the condition. Thorough general examination was negative, except for the finding of slight secondary anaemia, and an X-ray examination of the sella revealed nothing abnormal. In April, the vision of the right eye was 6/9, of the left 6/36, and there was now a quadrantic paracentral scotoma down and to the right in each eye; the left nerve was possibly a trifle paler than the right. General examination again revealed nothing. In May, the vision was a little worse, and the scotoma larger, but there was no papill-oedema. Six months later, the patient was vomiting frequently, was drowsy, and weak in the legs. The sella was normal by X-rays, and there was no bitemporal hemianopia. His vision improved somewhat during the next month and it was not until the following March that a partial bitemporal hemianopia developed. The radiographs were still normal, but an operation was performed in June and "a suprasellar cyst of the craniopharyngeal pouch variety" was found and removed almost *in toto*.

F. A. WILLIAMSON-NOBLE.

(15) **Wilson, J. Alexander (Glasgow).—A note on jaw-winking.** *Lancet*, October 6, 1923.

(15) **Wilson** reports a case of jaw-winking which he considers interesting from a medico-legal standpoint. The patient was aged 60 years. When speaking the right upper lid falls and covers the eyeball. When the patient stops speaking the eyelid is raised into its normal position. The lid also drops when he is eating. The interesting point is that the affection came on twenty years ago after the patient had been in a railway collision and had been in bed for several weeks, though he had no obvious injury. Wilson thinks that in this case "there has been a lesion or displacement of an upper neuron, permitting shunting, or escape of an impulse, from the line of the fifth nerve on to that of the third nerve."

ERNEST THOMSON.

(16) **Barnes, S. and Hurst, E. W.—Hepato-lenticular degeneration.** *Brain*, Vol. XLVIII, Pt. 3, September, 1925.

(16) This peculiar disease was first described by S. A. K. Wilson in 1912 (*Brain*, Vol. XXXIV, p. 295) and called by him "progressive lenticular degeneration." Barnes and Hurst consider that the title of hepato-lenticular degeneration is preferable since it indicates that the disease is complicated by the presence of cirrhosis of the liver. In their opinion the disease of the liver is really primary, evidence of which is carefully compiled in the paper. The chief interest of the disease to the ophthalmologist is the constant presence of the Kayser-Fleischer zone of corneal pigmentation in all cases of this disease manifest or latent, an appearance which has not been found in any other condition. In this paper an excellent coloured plate made from a slit-lamp drawing by Harrison Butler serves to illustrate the condition and should be referred to by all those desirous of recognizing this rare appearance.

E.E.H.

II.—GLAUCOMA

(1) **Dominguez, D. Diaz.—Subconjunctival injections of adrenalin in the treatment of glaucoma. (Las inyecciones subconjunctivales de adrenalina en el tratamiento del glaucoma.)** *Arch. d'Oftal.*, Vol. XXV, p. 361, July, 1925.

(1) The lowering of intraocular tension in glaucoma by means of subconjunctival injections of adrenalin has of late excited a considerable amount of attention (*vide Brit. Jl. of Ophthal.*, Vol. IX, p. 308, 1925). The first report in Spanish literature of cases so treated comes from the clinic of **Diaz Dominguez.**

He reports eight cases in detail of acute and chronic glaucoma. The dose given was 0.3 c.c. of 1 :1,000 adrenalin (Parke Davis). In most of the cases a definite reduction of tension was obtained (90 to 45 ; 40 to 25 ; 55 to 28 mm. Hg., etc.) ; the average duration of the relief of tension was two to three days, after which time a repeated injection again produced a like result. In one case of acute glaucoma an adverse result followed. Pain and a rising tension followed a first injection, symptoms which were aggravated by a second injection although accompanied by the instillation of eserin, and iridectomy had to be resorted to.

The author summarizes his conclusions thus :

(1) In glaucomatous patients the subconjunctival injection of adrenalin produces a lowering of tension which may last several days.

(2) Eyes which ordinarily are resistant to treatment by miotics, are influenced by them when their action is reinforced by adrenalin.

(3) Throughout the series no serious accident has ever occurred: but the method of treatment is contraindicated in acute glaucoma.

(4) No detriment to vision, central or peripheral, follows the injection.

(5) The precise action of the adrenalin is unknown; nor does it throw any light on the pathogenesis of glaucoma.

(6) A new and successful therapeutic agent, whose exhibition is indicated especially in cases resisting miotics, and prior to surgical treatment. This last may in some cases be avoided, but only on condition that a constant watch can be held over the patient.

W. S. DUKE-ELDER.

(2) **Rotter, F.—Asthmolysin injections in glaucoma. (Über die Verwendung eines Adrenalinpräparates in der Praxis.)** *Zeitschr. f. Augenheilk.*, Bd. LV, p, 420, June, 1925.

(2) Asthmolysin is described as a solution of extract of adrenal body in combination with pituitary. It has been used as a subconjunctival injection under holocain anaesthesia by **Rotter** in a series of eight cases of glaucoma, the majority secondary to iritis. The temporary reduction of tension obtained he ascribes mainly to the adrenalin, the presence or absence of pituitrin causing little effect. He shows that pituitrin, ergot, etc., on subconjunctival injection, do not seem to have the same effect on the unstriped muscle of the eye as they have in other organs, and that to obtain contraction of the pupil and consequent freeing of the angle of the anterior chamber, the best adjuvant to adrenalin is eserin or pilocarpin.

W. S. DUKE-ELDER.

(3) **Delord, Emile (Nîmes).—Infantile glaucoma. Cure by a double sclerotomy. (Glaucome infantile. Guérison par une double sclérotomie)** *La Clin. Ophtal.*, October, 1924.

(3) The reviewer well remembers the insistence by Haab at Zurich on the value of sclerotomy, repeated if necessary, in the treatment of infantile glaucoma. **Delord** here relates a case in point. The infant was two and a half months old. The father, aged 35 years, had had a similar condition at six months old, and had been sclerotomized by Galezowski at nine months. In the father's case the single operation seems to have sufficed for a cure; progress was stopped, and although the eye remained enlarged, the fundus was normal and the tension 20 (Bailliart). The other eye was normal.

In the case of the child now under consideration one eye was normal, the other manifestly increased in volume with high tension. For a week or two things seemed to improve under pilocarpin and mercurial frictions. Then there was an aggravation of the symptoms which could not be controlled by medicaments. An operation was decided upon and carried out some five weeks after the child's first attendance; a large anterior sclerotomy under local anaesthesia. Diminished tension, clearing of the cornea and reduction in size of the eyeball resulted. At the end of one month the symptoms recurred and the tonometer, now used for the first time, recorded 45 (Bailliart and Schiötz). A second sclerotomy was performed about two months after the first. The tension came down to 15, the eye cleared up, though the augmented volume persisted. Six months later the result was good, tension stabilized at 20, the same as the sound eye.

ERNEST THOMSON.

BOOK NOTICES

Helmholtz's Treatise on Physiological Optics. Translated from the Third German Edition. Edited by James P. C. Southall, Professor of Physics in Columbia University. Published by the Optical Society of America. Vol. II, pp. VIII, 479. Vol. III, pp. X, 736. Price 7 dollars each. Orders should be sent to Prof. F. K. Richtmyer, Secretary of the Optical Society, Cornell University, Ithaca, N.Y., U.S.A.

The first volume of this translation of "Helmholtz's Physiologische Optik" was reviewed in this journal last year (Vol. IX, p. 87). Professor Southall and his collaborators are to be very sincerely congratulated on bringing their difficult task to a satisfactory conclusion.

The first volume dealt with the somewhat antiquated description of the anatomy of the eye, and with dioptrics. The second volume, about equal in size to the first, deals with the "sensations" of vision; and the original text is enhanced by very valuable appendices by Nagel on adaptation and the duplicity theory, and by von Kries on normal and anomalous colour systems and on various theories of vision. These are all derived from the third German edition, and have long been available to readers of German. They are masterly expositions which still merit the careful attention of physiologists and ophthalmologists, who need have no fear that they are by any means as yet out of date. An additional appendix by Mrs. Ladd-Franklin expounds her well-known views on the

nature and evolution of colour sensations. A "partial bibliography, 1911-1924" has been added. Any bibliography is a thing to be thankful for, even if it is incomplete. The present one has really already been to a great extent superceded by the bibliographies contained in F. B. Hofmann's "Die Lehre vom Raumsinn des Auges," but will be useful in supplementing these with important references to English and American literature. Specially noteworthy are the references to excellent work done by American physicists.

The task of translating volumes I and II must have been child's play compared with that of translating volume III, and we sympathize with the editor's attempt to disarm criticism when he says that "I have sometimes doubted whether I had succeeded in expressing the precise shade of meaning that the writer wished to convey, conscientiously as I have striven to do so." On the whole we think he has succeeded very well. The volume deals with the "perceptions" of vision, and when it is remembered that Helmholtz's use of the term "Wahrnehmung" differs considerably from that in common use among psychologists, and further, that each psychologist seems to be a law unto himself as to the shade of meaning which he shall attach to such terms as "Wahrnehmung," "Anschauung," "Begriff," etc., the translator's lot is indeed an unhappy one. We can, indeed, imagine no more salutary discipline for psychologists (and physicists!) than to study this great treatise of Helmholtz, though unfortunately they are for the most part too inadequately trained in the biological foundations of perception to take full advantage of the effort. It is, however, worthy of note that the method of approaching these problems to-day shows a distinct tendency to rehabilitate a psychological outlook for which Helmholtz was severely criticized. The internecine strife between empiricists and nativists, of which this part of Helmholtz's work was a famous battleground, has lost much of its meaning to-day when the principle of inherited neural dispositions, which nobody denies, acts as peacemaker between the rival factions.

This, the largest volume, deals with eye movements, visual localization, perception of depth and binocular vision; and is enriched by copious illuminating notes by von Kries. In addition von Kries has added a series of appendices which are excellent essays on such subjects as space-perception, localization, rivalry, the physiological foundations of judgment and learning, empiricism and nativism, and so on. A further "partial bibliography, 1911-1925" is added, to which the remarks already made above equally apply.

We very heartily congratulate Professor Southall and his collaborators on the completion of their arduous task. If it

succeeds in stimulating further research on the grievously neglected subject of the special senses it will richly repay the labour which it has entailed; for the special senses are *par excellence* the meeting place of physiology and psychology, and we are convinced that Johannes Müller was right when he said, "Nullus psychologus nisi physiologus."

Newer Methods of Ophthalmic Plastic Surgery. By EDMUND B. SPAETH, M.D., F.A.C.S. Philadelphia: P. A. Blakiston's Son & Co. 1925. Price 21s. net.

This book is written to serve the ophthalmic surgeon in his everyday practice, as the author is of opinion that plastic surgery of the eye cannot be satisfactorily carried out by a general surgeon.

The first part of the book is concerned with the various types of operation which are well illustrated and explained. Thus the different grafts, skin, fat, muscle, mucous membrane, etc., are described, then the various types of flaps, pedunculated, tubular, hammock, sliding, and subcuticular. There is also a useful chapter on prostheses for inoperable cases, and an account of the application and indications for use, of the dental splint.

In the second part the author considers the various defects of the eye requiring operative treatment, and describes these operations in considerable detail. Most of them are done under a local anaesthetic, but now and again a general anaesthetic is used. In some of the latter cases, it is recommended to inject adrenalin solution—this must be rather a hazardous procedure as several deaths are known to have occurred under general anaesthesia from the injection of this drug.

One of the objects of the author has been to arrange his subject matter for easy reference. Though several operations may be described for the correction of certain defects, these operations are arranged in order of the severity of the defect to be dealt with. Thus in the chapter on ectropion, the first operation described is that of making a series of galvanocautery punctures through the conjunctiva of the lower lid, 3 to 4 mm. from the lid margin, the punctures passing into the tarsal plate but not through it. The last operation advised is that described by Wheeler in which "the lid margins are resected from their malplaced position," and brought into accurate approximation by a carefully planned canthoplasty, the bare areas being covered by a large Thiersch graft. There are excellent sections on socket restoration and plastic repair of tumour sites. In fact the whole book is a mine of useful information for the ophthalmic surgeon who is suddenly called upon to perform a plastic operation when he may not have had a large experience of this branch of surgery.

Surgery of the Eye. By ERVIN TÖRÖK and GERALD GROUT. Second edition. Pp. 484; illustrations 510. Printed in America. Published by Ballière, Tindall & Cox, London, 1925. Price 30s.

The first 110 pages of this book are devoted to general surgical methods. In the description of the various operations there is a considerable amount of repetition, but as the authors decided that each operation should be complete this was unavoidable. For instance in cataract extraction four operations are fully described even to the after-treatment, yet these operations only vary as to whether a keratome or a von Graefe knife is used and an iridectomy or simple extraction is done. No mention is made of the peripheral iridectomy which is so often performed in this country.

In the after-treatment of simple extraction eserin is advised immediately after the operation and atropin is not to be used subsequently unless the eye becomes inflamed. In the first edition Elliot's trephining operation for glaucoma was not mentioned. In this volume there is a good description occupying seven pages.

The illustrations are mostly diagrammatic; there are some photographs of operator and patient; and many illustrations of instruments. Nearly all are good, but there is one illustration, Fig. 175, and repeated as Fig. 216, of a posterior sclerotomy in which the drawing of the knife is faulty. The knife looks as if it is being directed straight into the lens instead of backwards towards the optic disc.

This is the largest volume on ophthalmic operations that has been published in the English language, and can be strongly recommended to those who are anxious to become proficient.

Ophthalmological Society of Egypt, Bulletin of 1925. Department of Public Health, Cairo. Price 20 piastres.

The annual meeting of the Society was held in Cairo during March, 1925. It was attended by 82 members. Dolbey recommended preliminary ligature of the external carotid artery in operations on the orbit. Operations upon the orbit more particularly those of complete evisceration of the contents are attended by a serious degree of haemorrhage and consequent shock. The freedom of anastomosis between the facial, internal maxillary, and ranine arteries obscures the clear view of the surgeon in estimating the nature and extent of the involvement of the walls of the orbit in malignant conditions and in tumours of the orbit. During a period of five years, as general surgeon at the Government Hospital in Cairo, he has had to perform 28 operations of exenteration of the orbit for rodent ulcer and other malignant conditions, and 11 operations for orbital tumour according to the

method of Krönlein. In all these cases he performed a preliminary ligature of the external carotid artery. In the exenteration cases he found that the bloodless field resulting, allowed a very clear and complete inspection of the progress and extent of the disease along the walls of the orbit and into the spheno-maxillary fissure. The diathermy treatment which he is in the habit of applying subsequently, is thereby much facilitated.

In the Krönlein's operation he finds the preliminary ligature invaluable in obtaining a bloodless field, owing to the difficulty in determining the line of demarcation between a soft and rapidly growing sarcoma of the orbital tissues and the normal tissue of Tenon's capsule. Also the excellent approach to the back of the globe and the optic nerve afforded by this operation is often sacrificed by the persistent oozing of blood in cases where the external carotid has not been ligatured. The only danger in the operation is possible damage to the internal carotid. In the operation which Dolbey recommends the collateral circulation from the facial and internal maxillary arteries is established in twenty-four hours.

Riad reported an interesting case of quinine amblyopia in an officer of the Egyptian Army stationed in the Sudan. While invalided in a field hospital for some form of gastritis, his attendant gave him some form of quinine salt instead of Epsom salts. The actual amount is not known, but he vomited, had ringing in the ears and afterwards became comatose for eight hours. When he recovered consciousness he was both blind and deaf, and remained so for 45 days. Gradually the deafness passed off and some vision was restored. He was then transferred to Cairo where he came under Riad's observation. Both pupils were slightly dilated, responding sluggishly to light, and well to accommodation. R.V. 6/60; L.V. 6/24; there was slight myopic astigmatism. Both discs were pale with slightly hazy edges, maculae brownish-red in colour, retinal vessels especially the arteries very much contracted, most of the principal arteries were bordered by a white line of periarteritis, and some of them could be traced only a short distance from the disc. Others were transformed into white threads. About two disc diameters from the right optic disc the superior nasal artery was covered with two white plaques twice the size of the artery, and about 3 mm. long, a short distance away from each other.

The fields of vision were elliptically contracted with the long axis horizontal. Under treatment with dark glasses, strychnine hypodermically, amyl nitrite, nitro-glycerine, and digitalis, he improved and in two months he got 6/9 in right eye and 6/12 in left eye, and could read J.8. But later the vision began to decline gradually, and after six months he could only count fingers

at 2 metres in right eye, and at 3 metres in left eye. The fundus appearances remained unchanged except that the discs were very much paler. The interesting feature of the case is that although the central vision improved temporarily, it relapsed to a most serious state. The patient was lost sight of at this stage.

Sobhy, A., Barrada, and Migally reported a case of multiple rodent ulcers. There were seven such ulcers around the eyes and ears, four of which were shown microscopically to be rodent. The age of the man and his employment are not given.

M. Tewfik remarks on the useful effect of novocain injections around the orbit as a preliminary to intraocular operations. This well-known procedure much reduces the liability to reflex movements. The orbit may be encircled with the injection which should be as deep as possible. The percentage of novocain may be 2 per cent., though 1 per cent. suffices. It may be mentioned that Holth before his glaucoma operations gives a retro-ocular injection through the skin of the lid near the outer lower angle of the orbital margin of 2 c.c. of a 2 per cent. novocain solution.

Azmy el Kattan describes an operation for ptosis, the principle of which is the insertion of two strips of skin underneath the skin of the upper lid. This shortens the lid and ties its free border to the frontalis muscle. He says that this operation is unnamed, but it appears to be a modification of one described by de Wecker. When considering what operation is most suitable for ptosis it is desirable that the excellent operation described by Young (*Brit. Jl. of Ophthal.*, June, 1924) should be remembered. Traquair does an operation which much resembles that of Young.

Meyerhof advocated the trial of adrenalin for simple glaucoma injected subconjunctivally, as suggested by Hamburger. In the discussion Tewfik drew attention to a communication by MacCallan (*Trans. Ophthal. Soc., U.K.*, 1903) in which he described five cases of glaucoma in which as the result of the instillation of adrenalin the pupil dilated, the cornea became steamy, and the tension rose. It is to be noted that four of the cases were in a condition of acute glaucoma.

Tewfik stated that a great economy had been effected at the Government Ophthalmic Hospitals amounting to £500 a year by reducing the percentage of cocain used for surface and infiltration anaesthesia and adding potassium sulphate to the solution used. The formula used is made up as follows: Cocain hydrochlor., for surface anaesthesia 1 gramme, and for infiltration anaesthesia 0.5 gramme, adrenalin 1/1,000 5 grammes, potassium sulph. 25 grammes, carbolic acid solution 5 per cent., 1,000 grammes. The anaesthesia obtained was as satisfactory as that previously obtained with higher percentages of cocain.

Annual Report of the Department of Health, Government of Palestine for 1924.

In the last report on the ophthalmic service of the Palestine Government, the Director of Health, Colonel Heron, stated that on account of financial stringency the travelling ophthalmic hospital was closed, and that the ophthalmic clinics at six centres, previously under the charge of Dr. W. E. Thompson, would be placed under the charge of the Warden of the Ophthalmic Hospital of the Order of St. John of Jerusalem, who would be assisted by Dr. Thompson. The Warden's (Dr. Strathearn) report for 1924 has already been reviewed in these columns, and this change has been mentioned. Each ophthalmic clinic is in charge of the local Government Medical Officer, who has many duties to perform other than ophthalmic, but as he will be assisted by a trained ophthalmic nurse, he should do useful work, that is if he is encouraged by frequent inspections by Dr. Strathearn and Dr. Thompson; though it is difficult to see how they can spare time from their clinical and administrative duties in Jerusalem for such work.

Statistics of the work done are not given on account of the facts that some of the clinics had been open for a short time only and at others the change in the method of recording statistics does not allow of uniform figures being given for the whole year.

Of 10,577 Government school children who were medically examined, 6,646 or 62.8 per cent. were found to be affected by trachoma. In the village schools 73 per cent. of the children were affected, while in the town schools, where the routine preventive treatment is more skilled and systematic, only 56 per cent. were affected. Of the affected children, 16.1 per cent. had the disease in Stage I, 29.6 per cent. in Stage II, 34.1 per cent. in Stage III, and 20.2 per cent. in Stage IV. These refer to MacCallan's Stages of trachoma.

There were 498,496 attendances for treatment in the town schools and 223,675 attendances in the village schools.

The following remarks by the Medical Officer carrying out the inspection of school children in Jaffa may be quoted:

"1. It is noticed that the best results in treatment of trachoma are obtained in Stages I and II. The last stage being the beginning of the affection and superficial is quite amenable to treatment. In Stage III cicatrization has already begun and proper treatment comes in time to hasten its completion.

"2. Treatment of Stage II is less successful on account of the infiltration of the deeper tissue and the frequency of secondary infection of the conjunctiva. Yet a total percentage of cure in this stage of 52.94 after treatment on the school premises for two scholastic years is not bad.

"3. Recurrence of granulation from both Stages III and IV indicates the difficulty of bringing about a permanent cure of trachoma. Yet such recurrence does not exceed 12.5 per cent. in Stage III and 13.46 per cent. in Stage IV, and is largely due to the insanitary conditions of the students' houses.

"4. In the case of chronic conjunctivitis persistent application of 2 per cent. silver nitrate solution in the severer cases, and yellow oxide ointment in the others has proved quite satisfactory, total percentages of cure being 88.8.

"5. Notwithstanding the conditions of the school children, exposed as they are to the insanitary circumstances of their homes, as well as to frequent attacks of ophthalmia during the vacation months in summer, the treatment of trachoma in schools is arresting the disease within the period of two scholastic years at the rate of 75.4 per cent. Such a result is considered very satisfactory in schools as treatment does not interfere with the curriculum and gives the students a chance of perfect cure within three years."

CORRESPONDENCE

THE SCLERAL STITCH IN ADVANCEMENT OPERATIONS

To the Editor of THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—The note under the above heading in the journal for January, 1926, leads me to draw attention again to a method I described at the Oxford Ophthalmological Congress a few years back, by which, without the aid of any especially devised instrument, the insertion of the scleral stitch can be effected, not only with comparative ease, but—inasmuch as the track for the needle and suture is made before they are inserted—with the certainty that they are not too deep.

The method consists of utilizing an ordinary sickle-shaped cutting needle with a straight back, preferably in an all-metal handle. Make a needle track where desired in the sclera; before inserting the suture, the needle is withdrawn and the suture inserted by simply passing it through the already made track, using an ordinary needle holder. The use of a Harman's "needle lifter" at that end of track where the point of needle will come out helps.

The heaviness, solidity, and length of the metal cutting needle, and the fact that it is straight gives, during use, a sense of security

and certainty which can only be appreciated by actual trial. An essential point for success is that the greatest width of the cutting part of the needle be not less than the width of the needle-carrying suture which is going to be used.

Yours truly,

ARTHUR GREENE.

NORWICH.
January 23, 1926.

OBITUARY NOTICES

THE death of DR. SAMUEL LEWIS ZIEGLER took place on January 4, 1926, from pneumonia, in Philadelphia. He was 64 years of age. He graduated in 1885 in medicine at the University of Pennsylvania, and subsequently visited most of the European clinics including London, Paris, Berlin, and Vienna. He was appointed Resident Physician at the Wills Eye Hospital in 1887, followed in 1889 by the appointment of Assistant Surgeon to the same institution. This post he occupied until 1896. In 1889 he became chief Ophthalmic Surgeon at St. Joseph's Hospital, and from 1901 until his retirement from the office some years ago, Attending Surgeon at the Wills Eye Hospital. He was a corresponding member of many European ophthalmological congresses. Bucknell University conferred on him the honorary degree of D.Sc. in 1901, and Lafayette University that of D.Sc. in 1915. He published many papers on ophthalmic subjects, and, at the time of his death was engaged on his work "The Surgery of the Eye." He introduced a cautery operation for entropion and ectropion, and the sickle-knife which bears his name is well known to all ophthalmologists.

THE death of DR. ROBERT STANLEY MINNES took place at his home in Ottawa from pneumonia on December 27, 1925. He was in his 56th year. He was a student of Queen's University, Canada, where he graduated in Arts with a gold medal in mathematics in 1890, qualifying later in 1893 in medicine with the M.D., C.M. After a short time as House Surgeon in the Kingston General Hospital he came to England and studied at the Royal London Ophthalmic Hospital. In 1895 he was appointed Resident Surgical Officer to the Birmingham and Midland Eye Hospital, which post he held till 1897. He worked at the Throat Hospital, Golden Square, and visited Vienna and some other Continental clinics.

He returned to Canada in 1898 and settled in Ottawa where he soon acquired an extensive practice in eye, ear, nose, and throat work, but for the last few years confined himself to ophthalmology. He was regarded as a leading specialist in the Dominion by both the profession and the public. He had great ability, technical skill, and industry. He was Ophthalmic Surgeon to the New Civic Hospital, Ottawa, and a life member of the Ophthalmological Society of the United Kingdom.

THE death of DR. W. HISLOP MANSON took place on January 28, 1926 from a cardiac seizure while at work in the operating theatre of the Glasgow Eye Infirmary at the early age of 43 years. He was educated at Glasgow University, qualifying with the M.B. and Ch.B. in 1906. He received the M.D. degree four years later and was admitted a Fellow of the Royal Faculty of Physicians and Surgeons in 1912. He was appointed to the staff of the Glasgow Eye Infirmary in 1911. During the war he served in Gallipoli, Salonica, Egypt and Russia and suffered from several tropical diseases during his service. On his return he was appointed visiting surgeon to the Infirmary, and in 1920 was elected to the chair of ophthalmic medicine and surgery at the Anderson College of Medicine.

NOTES

Appointments

MR. M. S. MAYOU has been appointed Examiner in Ophthalmology at the University of Belfast and for the Diploma of Ophthalmology at Oxford.

MR. R. FOSTER MOORE and MR. RUPERT S. SCOTT have been elected Ophthalmic Surgeon and Assistant Ophthalmic Surgeon respectively to St. Bartholomew's Hospital.

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French Ophthalmological Society

THE 39th Congress of the French Ophthalmological Society will take place at the Faculty of Medicine of Paris on Monday, May 10, 1926, and following days. A report on the microscopical examination of corneal affections by means of the slit-lamp will be presented by Professor Gallemaerts of Brussels; an atlas of 22 original coloured plates will be annexed to the report. An excursion, to which ladies are invited, has been arranged on May 10 at Port-Royal des Champs. All information may be obtained from the general secretary, Dr. Onfray, 6, Avenue de la Motte-Picquet, Paris.

Professor Félix Lagrange

ON the occasion of the election of Professor Félix Lagrange to the Institute under the title of Correspondent of the Academy of Sciences, a representative Committee has been formed with the object of assembling in one volume, under the title of "Félix Lagrange et ses élèves," the principal works of the Bordeaux Ophthalmological School, both those actually written by him and also those written under his direct inspiration. Subscribers to the work will receive a numbered copy. The subscription has been fixed at 100 francs, and may be addressed to Professor Teulieres, 19, Cours de Verdun, Bordeaux, or to M. M. Gaston Doin et Cie, 8, Place de l'Odeon, Paris.

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Deaths

As we go to press we learn with deep regret of the sudden death of MR. M. W. B. OLIVER, Surgeon to the Central London Ophthalmic Hospital.

The death is also announced of PROFESSOR W. BATESON, F.R.S. and of PROFESSOR SIGMUND EXNER, both of whom contributed valuable scientific work of interest and importance to ophthalmologists.

FUTURE ARRANGEMENTS

1926

March 5.—North of England Ophthalmological Society at Sheffield.

March 12.—Royal Society of Medicine, Section of Ophthalmology (Clinical).

April 9.—North of England Ophthalmological Society at Newcastle.

April 29—*May* 1.—Ophthalmological Society of the United Kingdom (Annual Meeting).

May 10.—Thirty-ninth Congress of the French Ophthalmological Society.

May 14.—Royal Society of Medicine, Section of Ophthalmology.

June 11.—Royal Society of Medicine, Section of Ophthalmology (Annual).

July 14—17.—Oxford Ophthalmological Congress.

July 21—23.—British Medical Association at Nottingham.